VOL. XLVI. No. 10 OCTOBER 1961

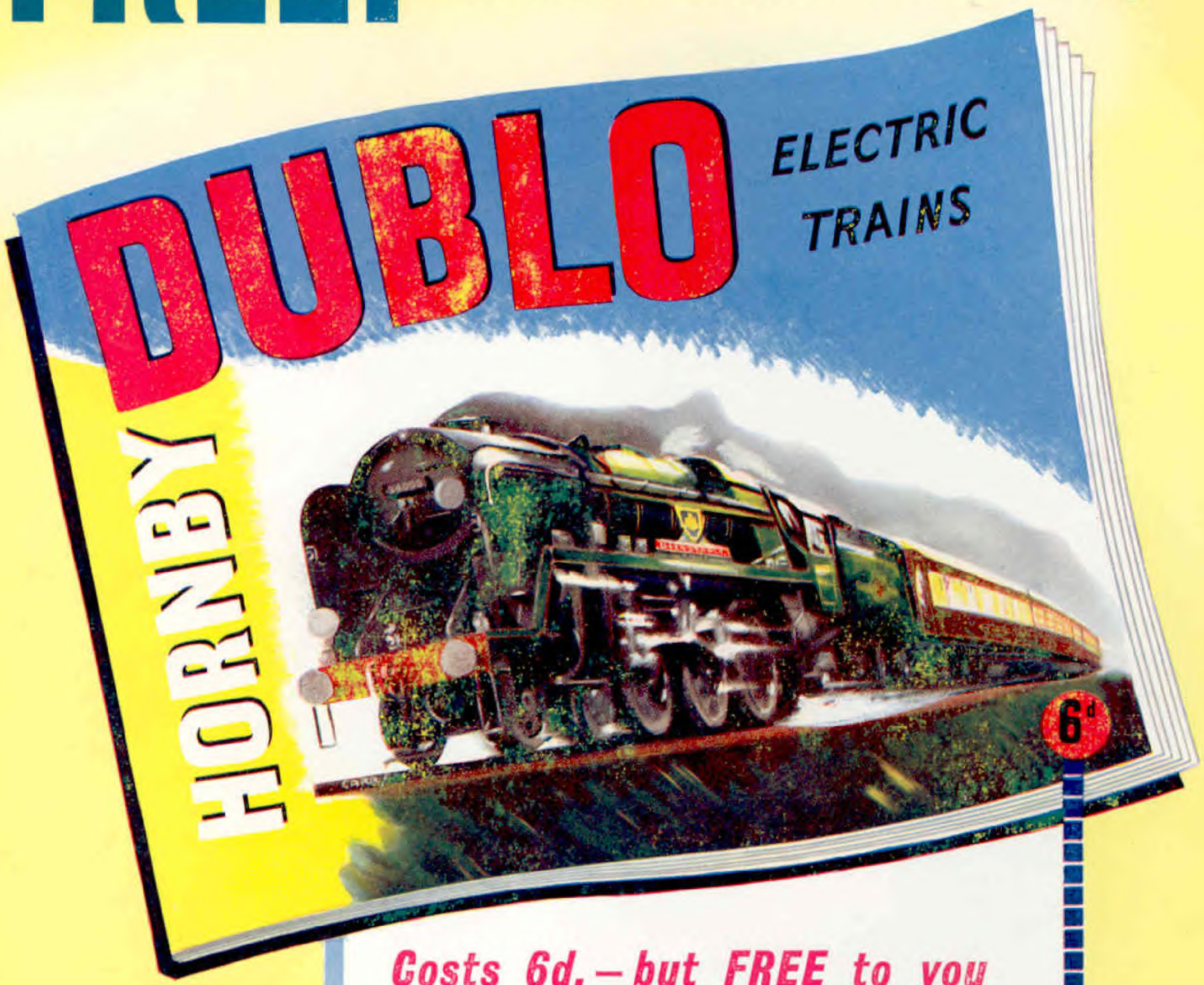
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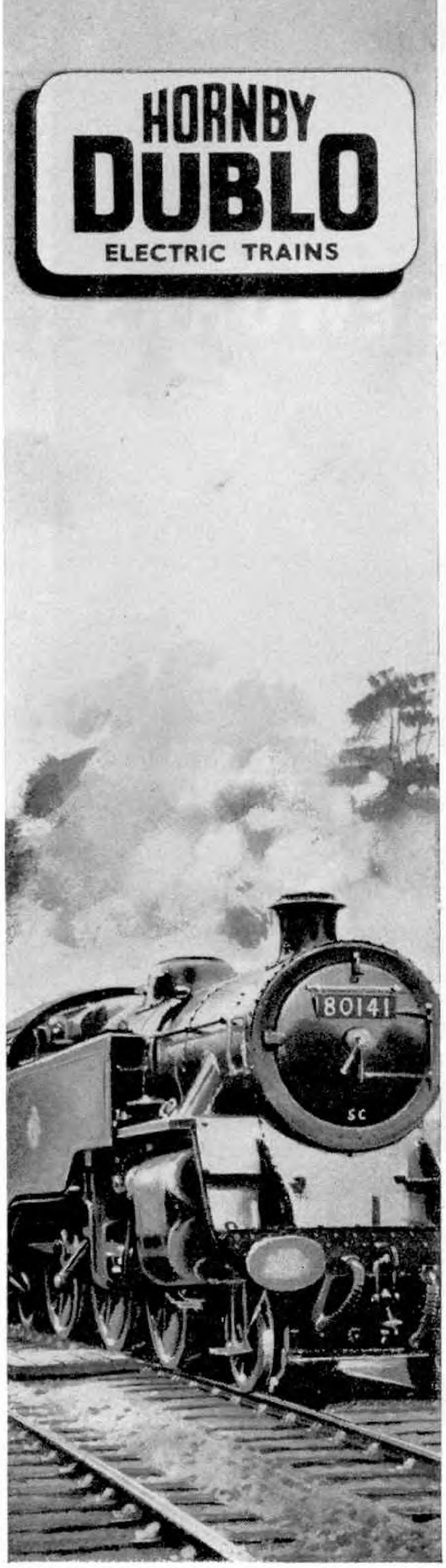
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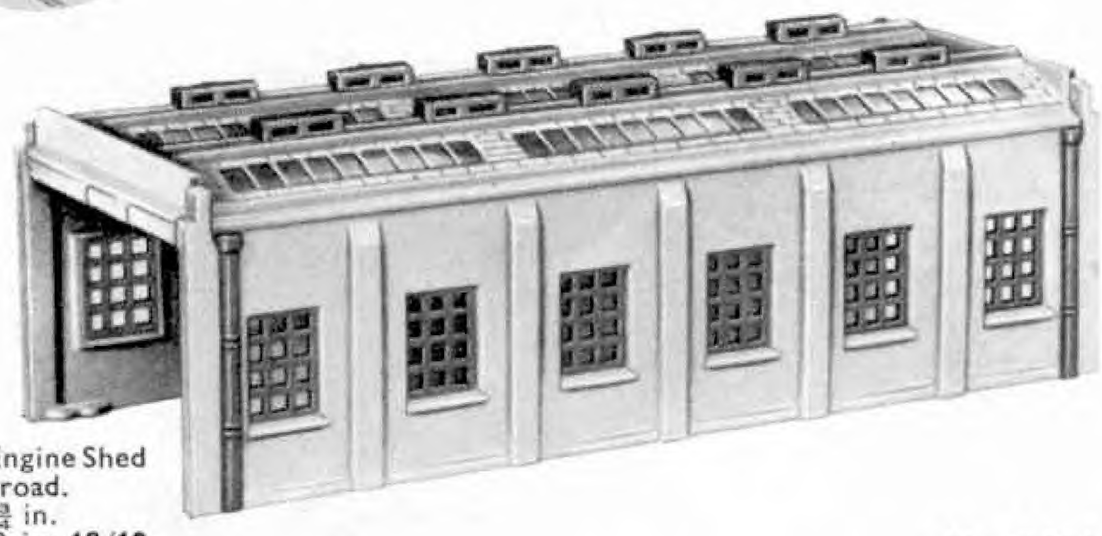
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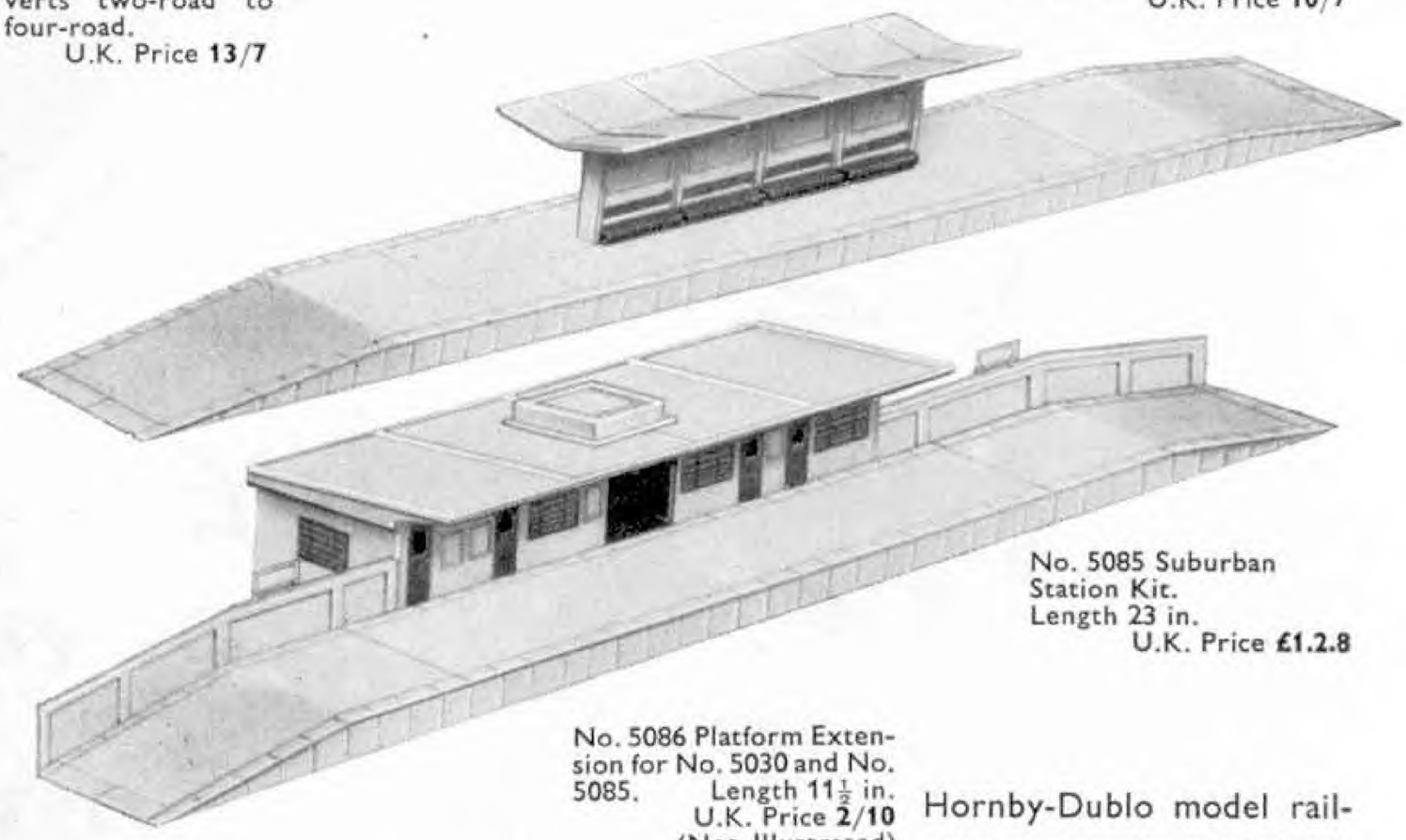
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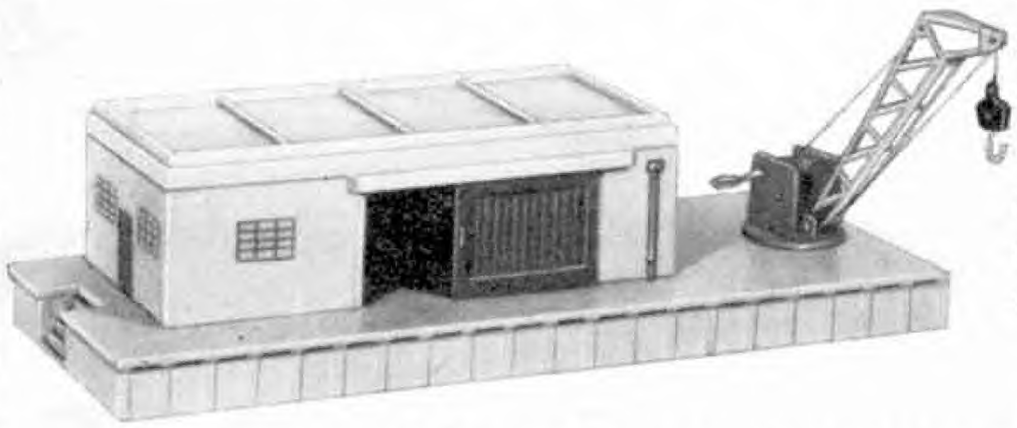
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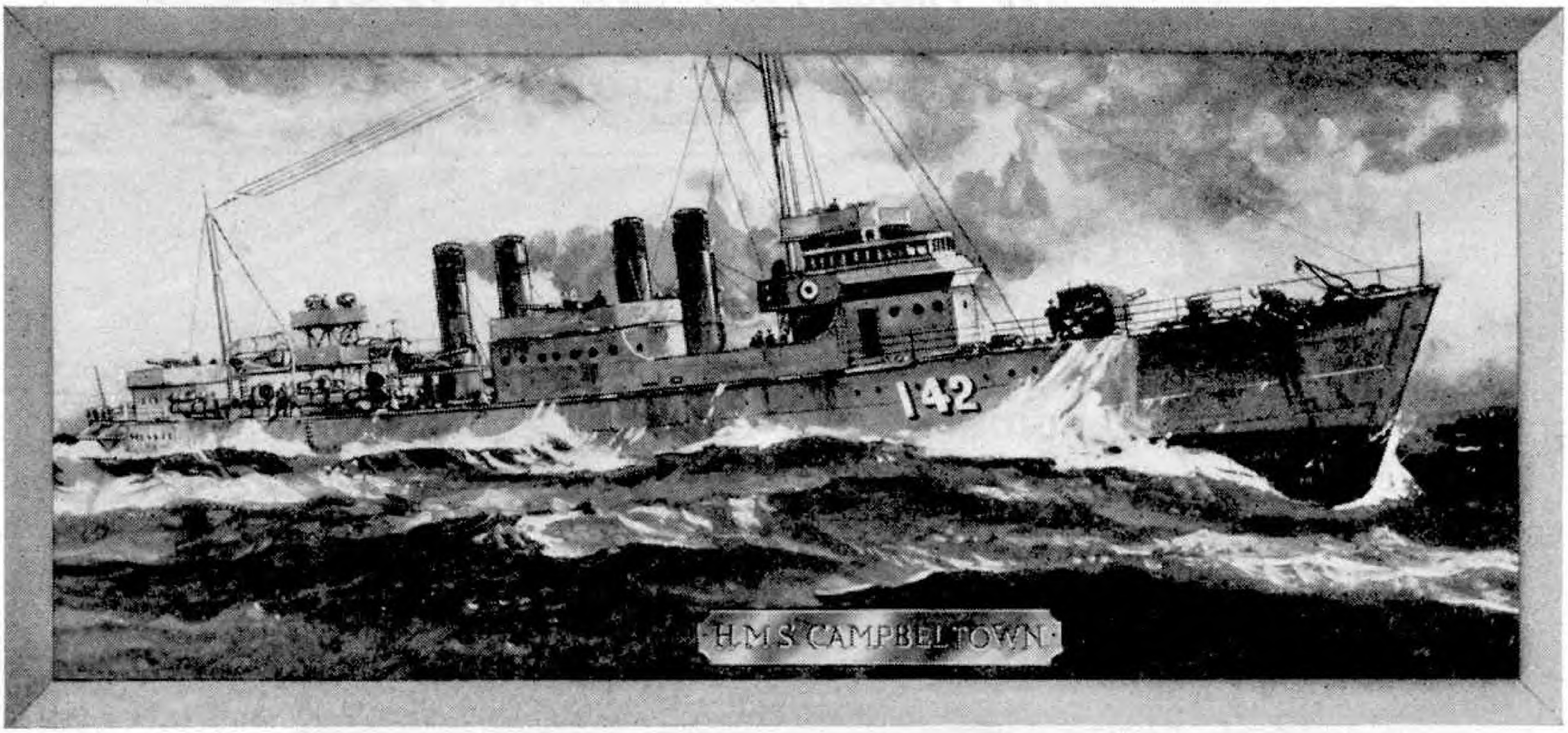
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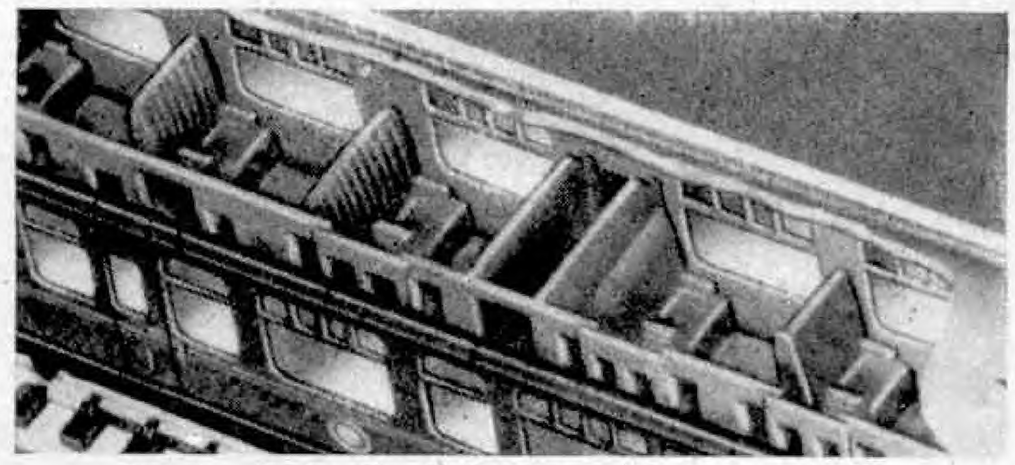
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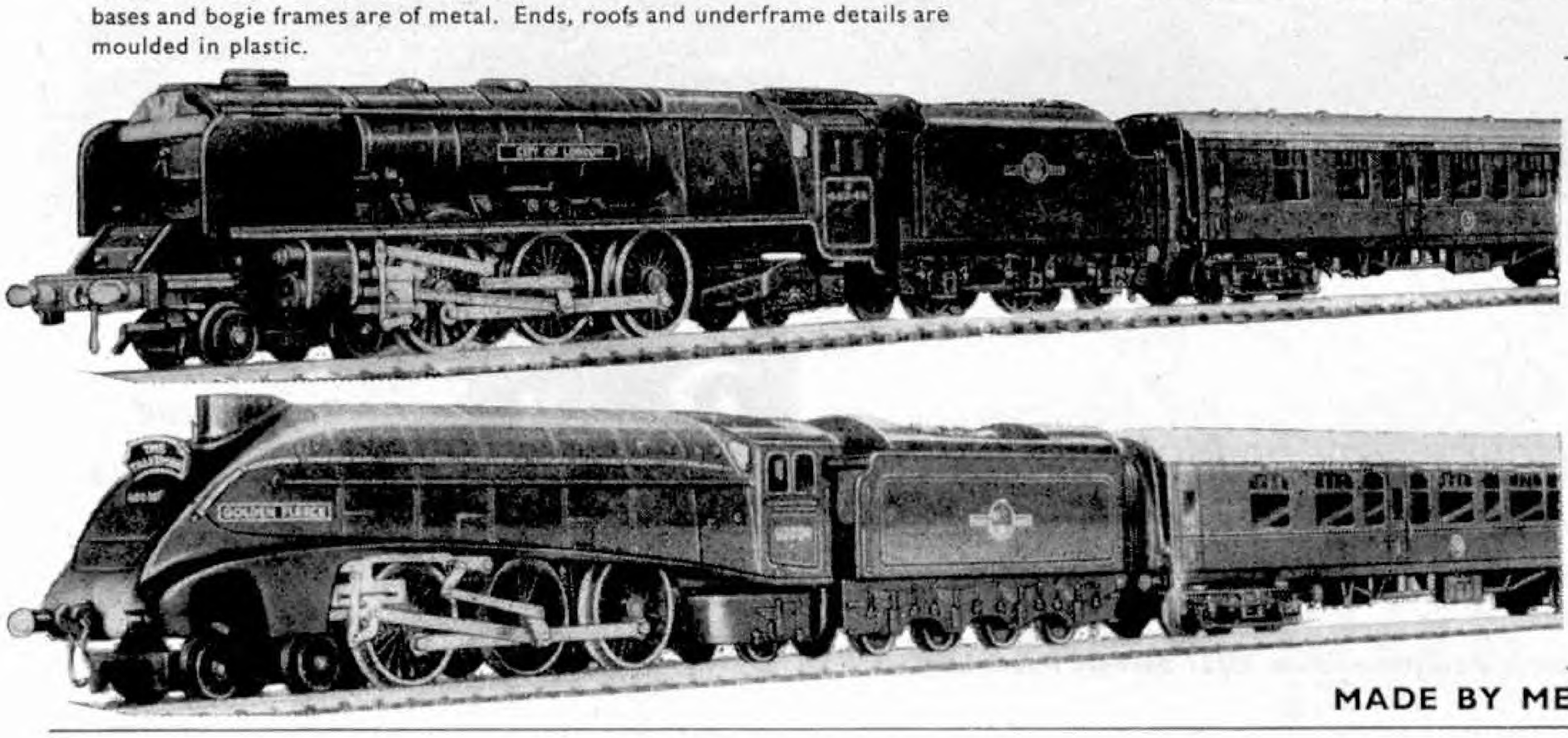
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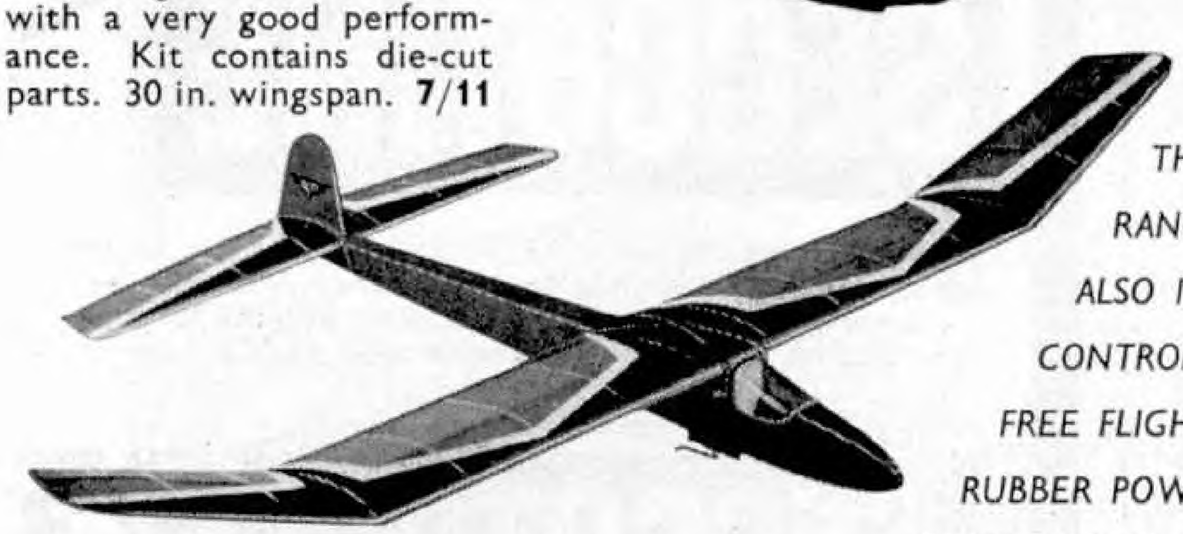


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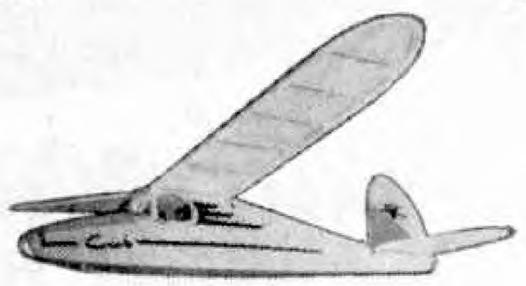
A–2 contest glider featuring crash-proof plug-in wings, D/T tailplane and automatic rudder. 64 in. wingspan. **23/6**

CONQUEST

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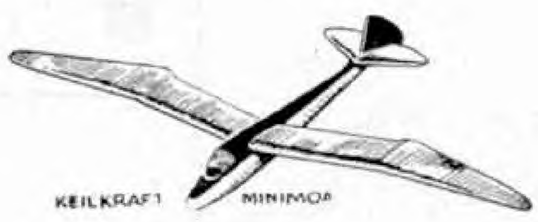
CUB

Snappy little beginner's model that flies very well indeed. Neat design that is simple to build. 24 in. wingspan. **3/9**



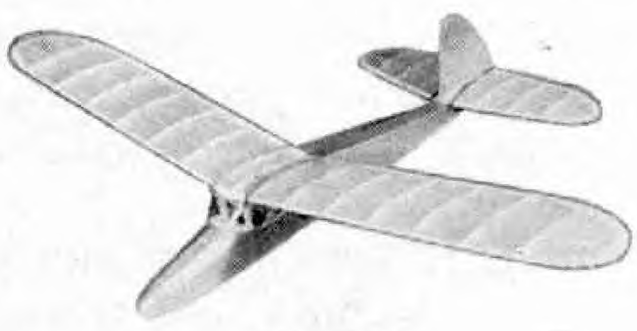
NOMAD

20 in. span prefabricated model with all fuselage parts, tailplane and fins pre-cut and coloured. **4/6**



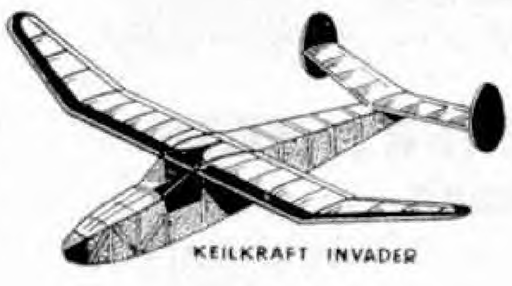
MINIMOA

A beautiful replica of the full size sailplane. This model has a fine performance. 50 in. wingspan. **9/6**



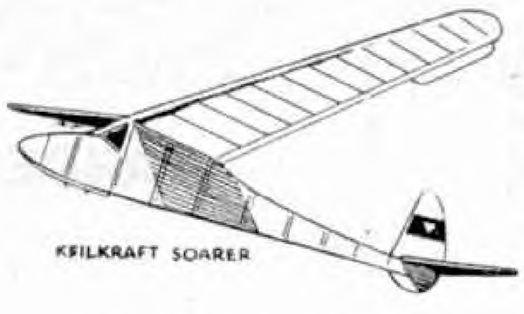
CADET

Ideal beginner's model. Simple, strong construction, and very easy to trim. 30 in. wingspan. **5/6**



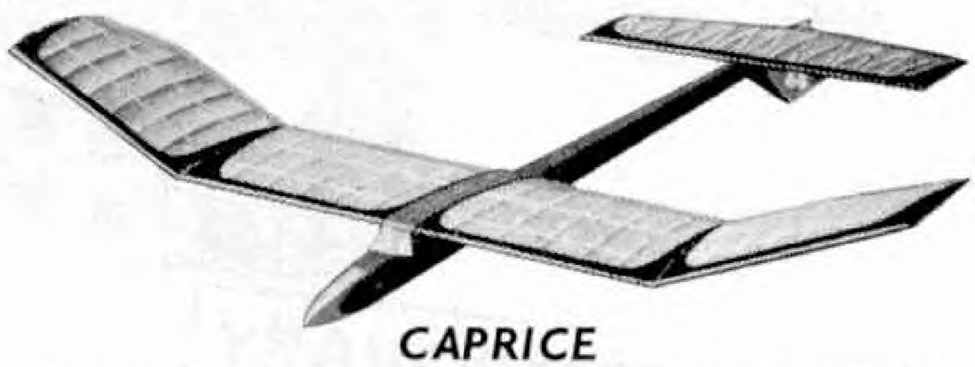
INVADER

A simple-to-build model that has long been a firm favourite. 40 in. wingspan. **8/6**



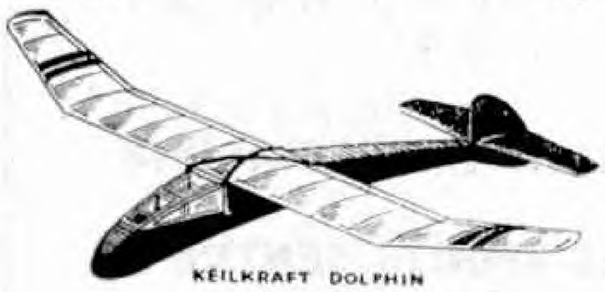
SOARER BABY

A very popular glider design with unusual lines. 36 in. wingspan. **6/6**



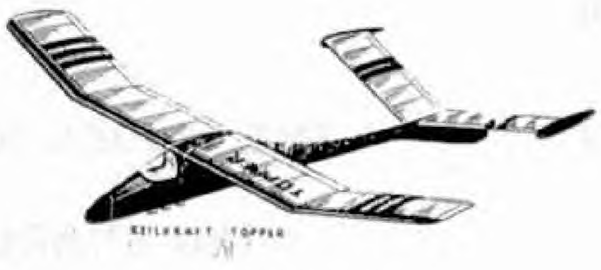
CAPRICE

High performance contest glider. Rugged and straightforward to build. Kit features die-cut parts for speedy assembly. 51 in. wingspan. **15/9**



DOLPHIN

Towline glider with a performance that will please even the most critical. 30 in. wingspan. **5/6**



TOPPER

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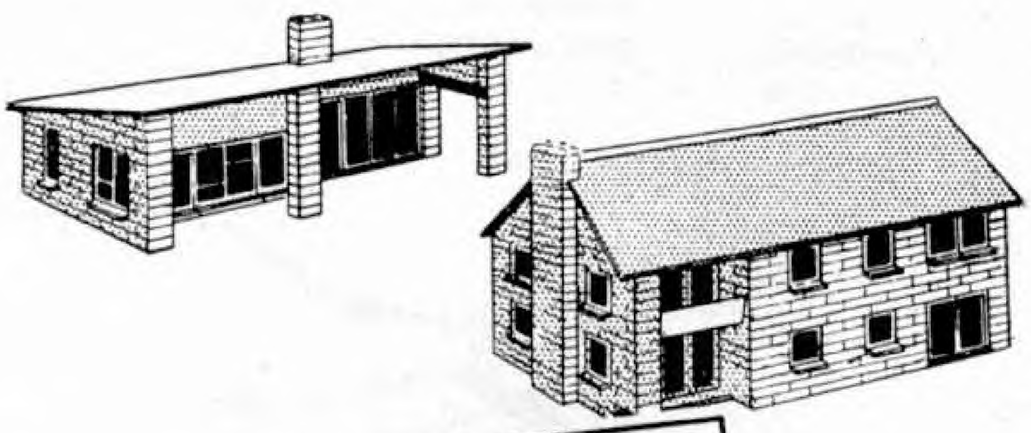


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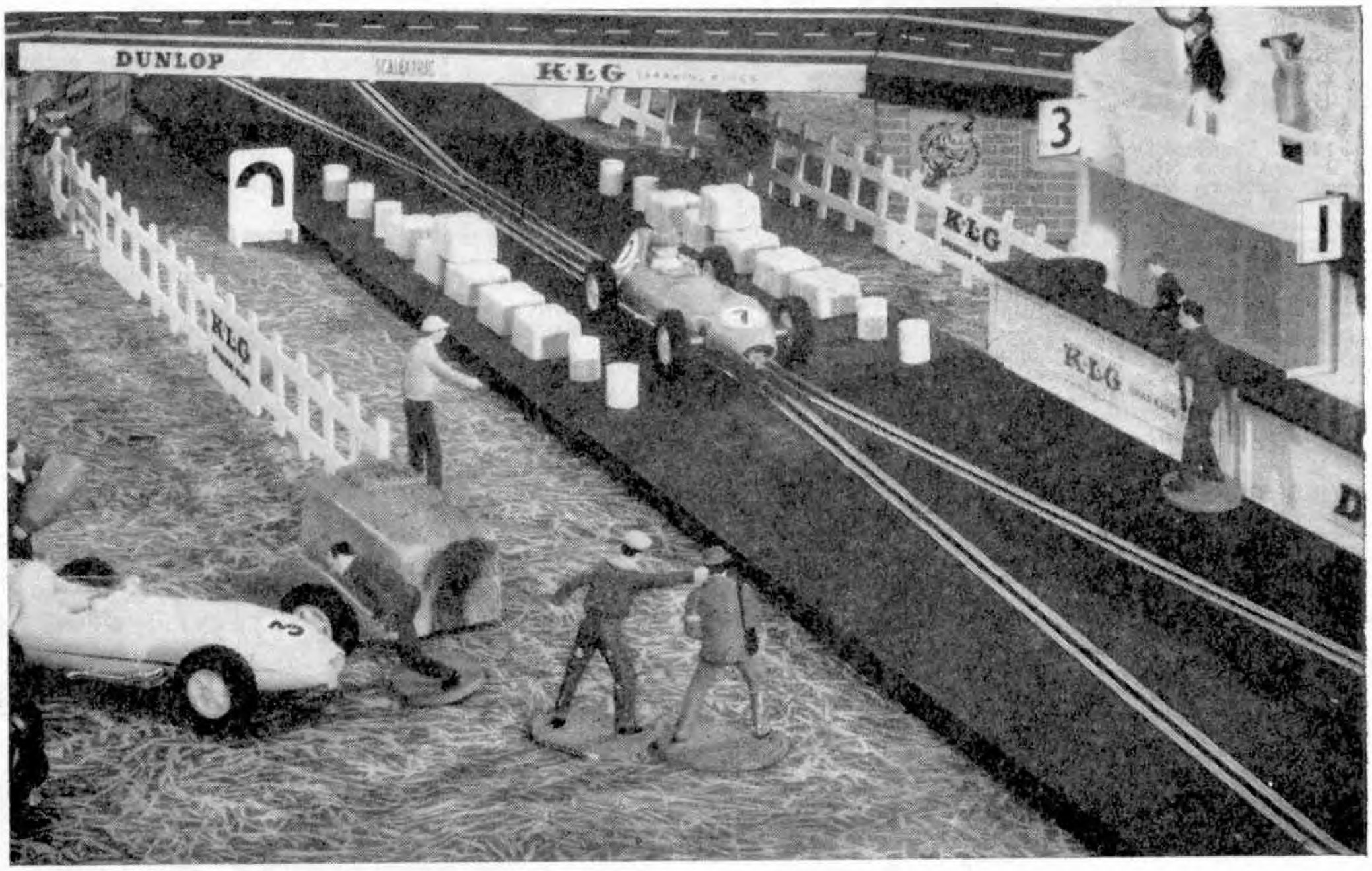
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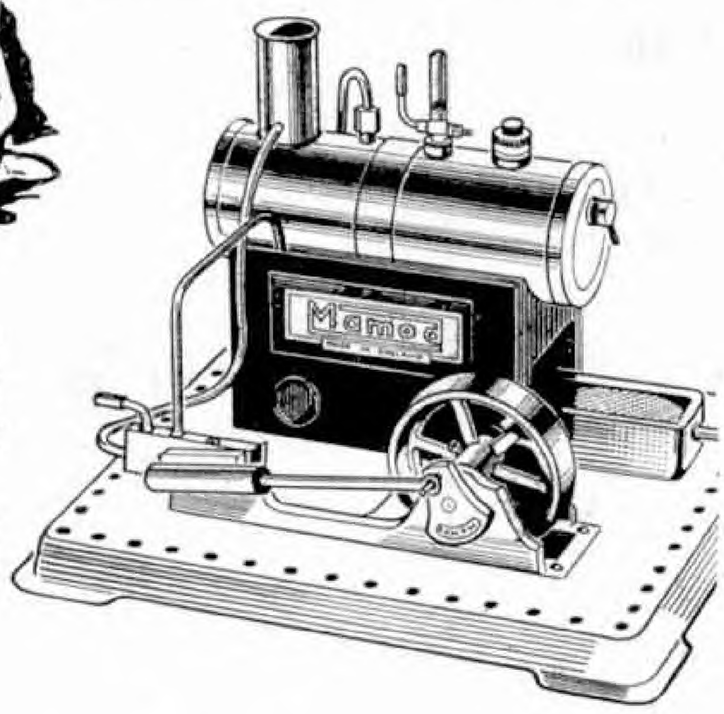
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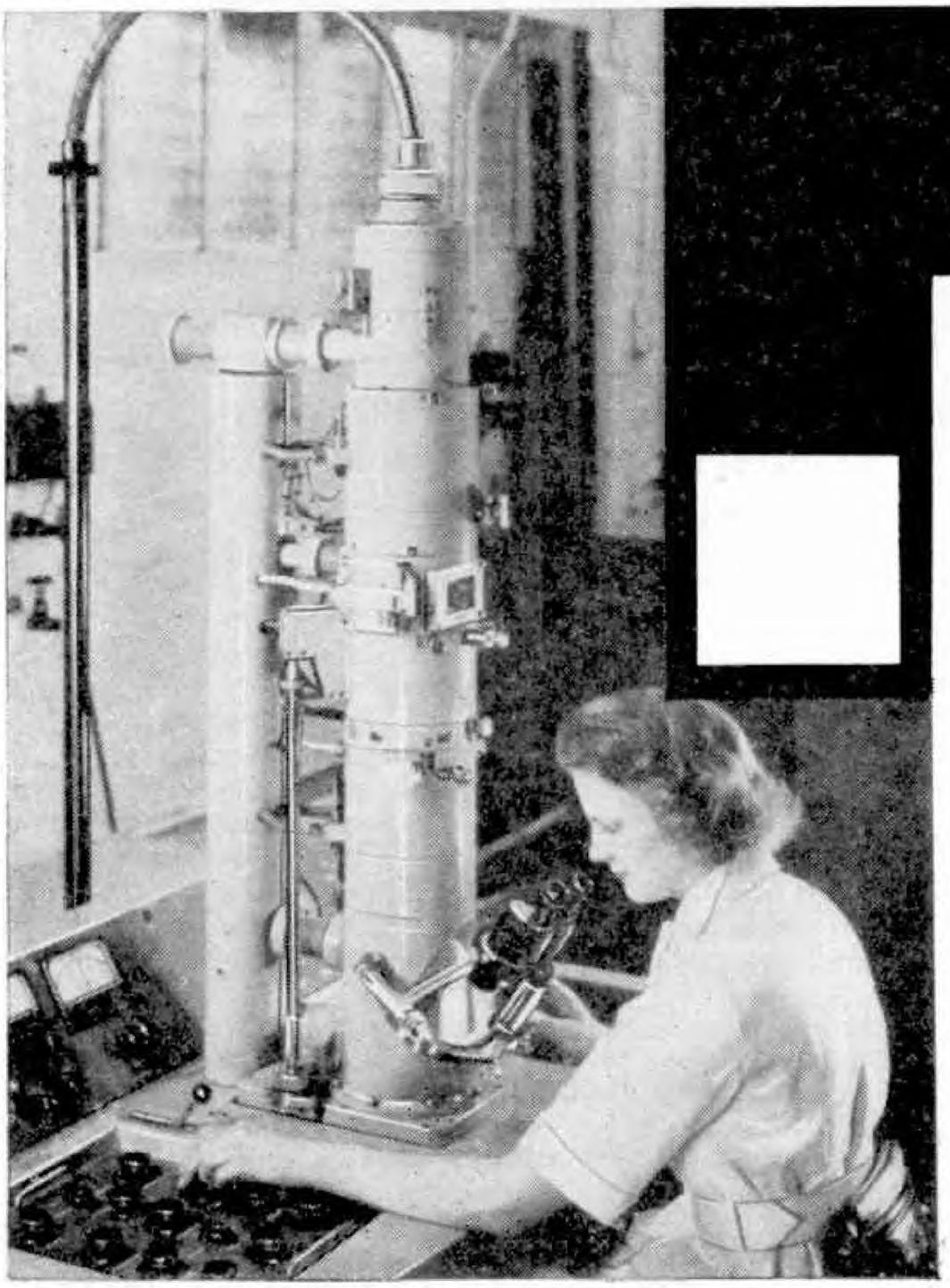
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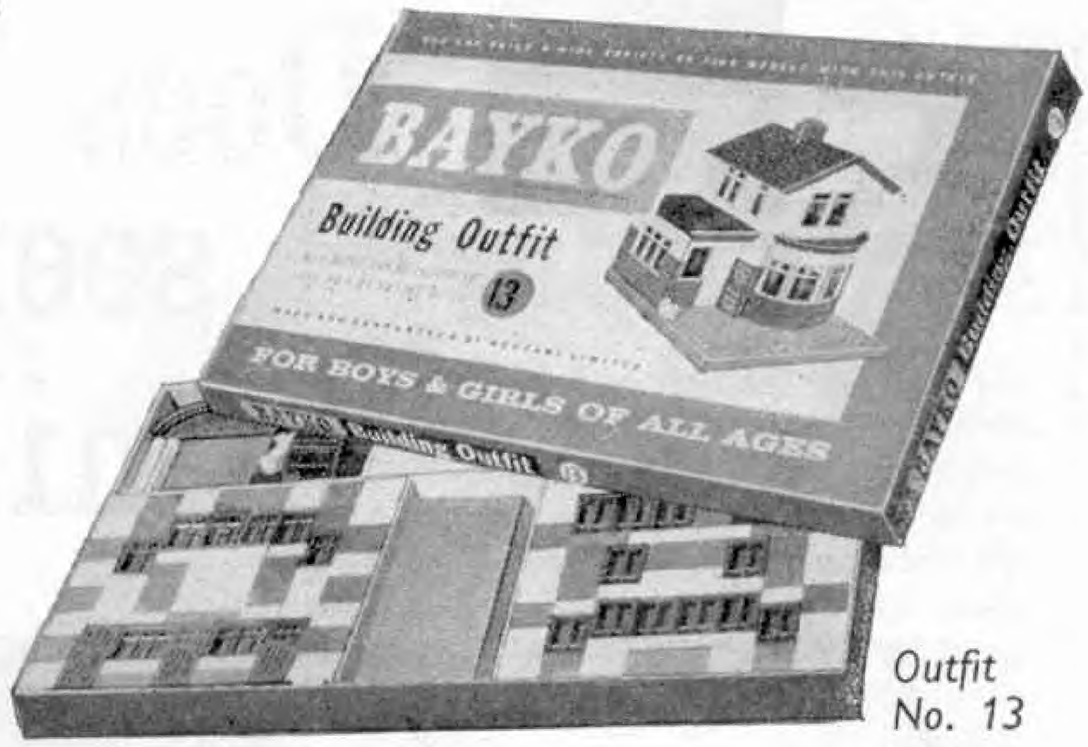
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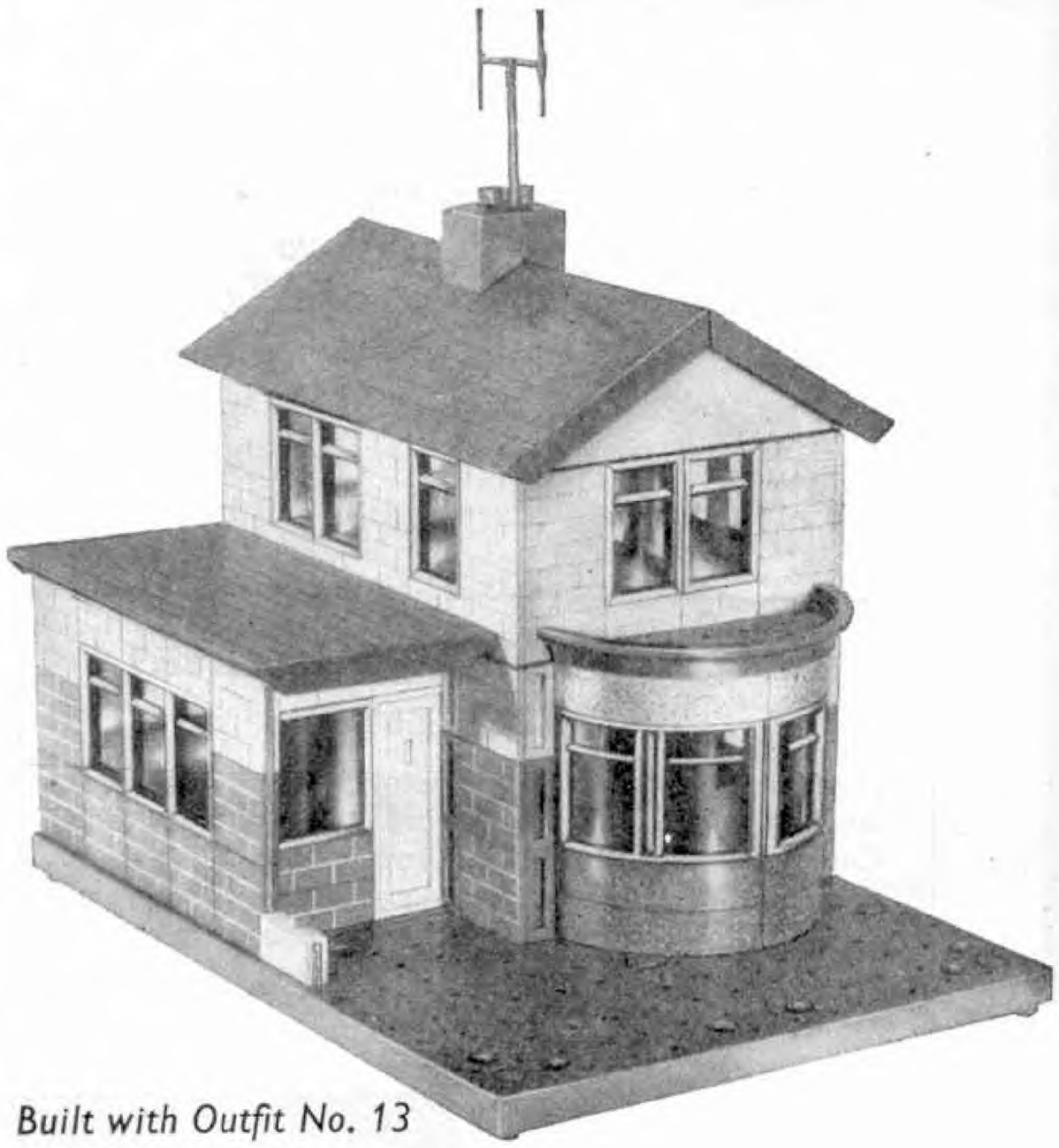
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Bayko is a fascinating moulded building toy—for Girls and Boys. It is easy and clean to handle, yet firm and rigid in construction. The Instructions Book gives easy-to-follow examples of interesting models of buildings of different kinds, but the best fun follows when modellers become their own architects and build models to their own designs. Sky-scrapers, multi-storey flats, hotels, air-ports and office blocks are typical models that ambitious young builders can construct with standard Bayko parts.



Outfit No. 13



Built with Outfit No. 13

It adds greatly to the fun and interest of the hobby to be able to purchase spare parts separately, a few at a time, to build these attractive larger models. Most Bayko dealers stock spare parts. Model builders unable to get spares should write to Meccano Limited.

Bayko Main Outfits

No. 11 Outfit	**10/7**
No. 12 Outfit	**18/10**
No. 13 Outfit	**26/3**
No. 14 Outfit	**40/1**

Bayko Accessory Outfits

No. 11c Accessory Outfit ..	**8/3**
No. 12c Accessory Outfit ..	**10/11**
No. 13c Accessory Outfit ..	**18/10**

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MECCANO MAGAZINE

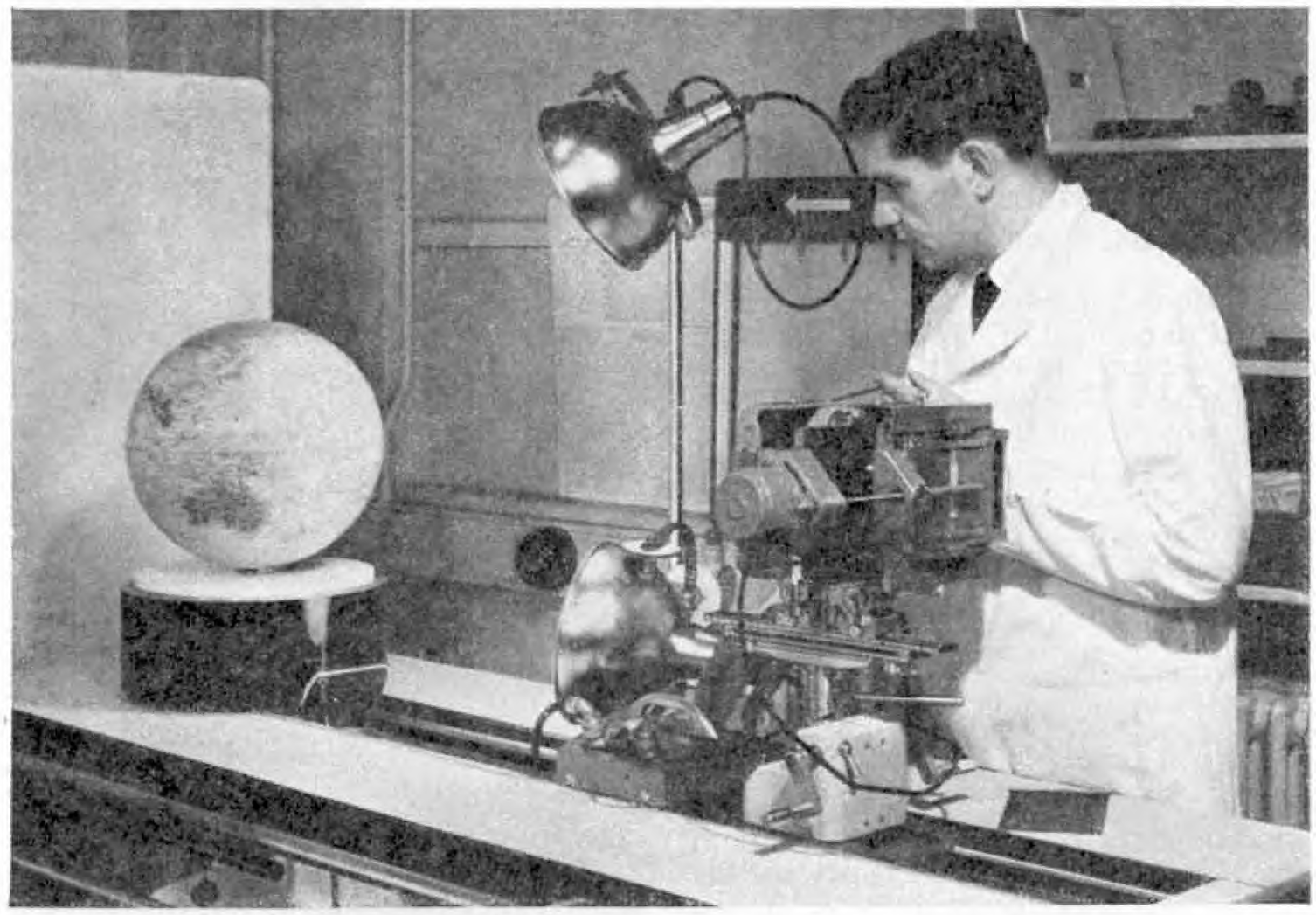
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Asst. Editor:
ERNEST MILLER



Getting The All-Round View

THE development of new techniques, or the extension of existing ones, is always of interest to people who are mechanically minded. Such development may, indeed, be said to make the world go round, but so far as the subject of this month's Editorial is concerned that expression is far from apt, since the object behind the use of the apparatus shown above, at the time the picture was taken, was to make the world flat! The camera you see in use is, in fact, most unusual for it can photograph all sides of an object at once. Developed at the Thornton, Cheshire, centre of Shell Research, Ltd., it takes a continuous, all-round view such as would be seen if the surface of the object being photographed had been peeled off, like the skin of an orange, and laid out flat. Thus, although our picture shows the camera photographing a globe, the final product will be a print that looks like a wall map.

This technique, known as periphery photography, is not new in itself, but previous methods have been limited by the size and shape of the object being photographed. The Thornton camera overcomes these limitations. Even the inside surfaces of hollow objects can be photographed. Indeed, the camera can photograph objects as small as revolver bullets or fingerprints on a pencil, and as big as car tyres—applications that are of special interest to criminologists. It can also photograph complex and irregularly-shaped items like skew gears to give pictures which will show the surface of the object as if it were rolled out flat. It can be of value to the archaeologist, too, by enabling him to study inscriptions on ancient pottery without the need to handle it.

Two points of special interest to our readers this month are the introduction of a new series on Hornby-Dublo Two-Rail layouts and the start of our Winter Meccano Model-Building Contests, for which increased prizes are offered. The details are on page 378.

THE EDITOR.

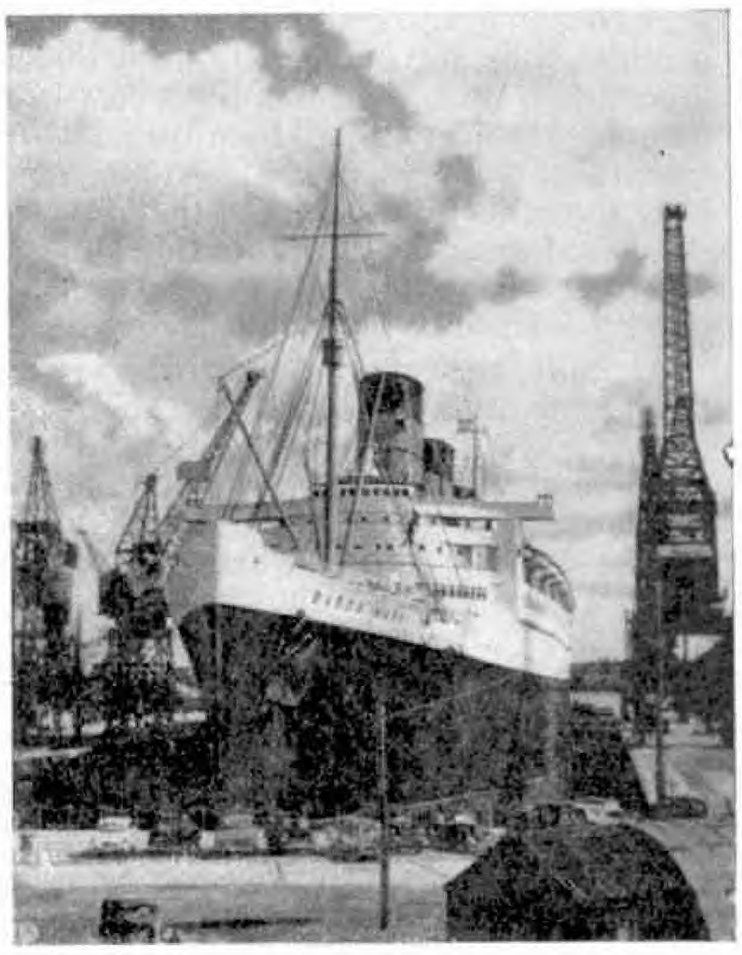
Next Month: ROAD AND RAIL IN TURKEY

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OUR FRONT COVER

To many people, there is nothing quite so fascinating as the sight of a huge liner, and this month we show on the M.M. *cover one of the world's biggest and best-known passenger ships—the* Queen Mary, *a member of the Cunard fleet. She is pictured in the dry dock at Southampton, where she was undergoing the short summer overhaul which is an annual event, and just previously the dock had been occupied by her sister ship* Queen Elizabeth. *On page 371 of this issue Patrick Townsend tells you something of the* Queen Mary's *history.*



TRAFALGAR DAY MEMORIES

NELSON—BEST-KNOWN BRITISH SAILOR

IF you want to meet a particular person (says tradition) you can be sure of doing so by waiting long enough at the foot of Nelson's Column, in Trafalgar Square, London. The belief is an exaggeration, of course, but it is based on the knowledge that sooner or later most people gravitate towards the Hub of the Empire, as the Square has been aptly called.

On October 21 it will be even more the focus of interest, for that is Trafalgar Day, when the great British naval victory of 1805 is commemorated and Admiral Lord Nelson is honoured. Yet Trafalgar Square and the Nelson Monument did not come into being without difficulties—and not all of them arose from the problem of erecting such a tall pillar with a statue on top.

It is hard to realise nowadays that this familiar memorial was not completed until 1867, 62 years after Nelson's death on board his flagship *Victory* at the Battle of Trafalgar. Slum property and outdated royal mews had to be cleared to provide the open space, and various other setbacks delayed the scheme. For several years it was held up by controversy about the form the memorial should take. One idea was that an art gallery should be built in the middle of the square to house the Royal Academy. Another proposal was that Nelson's statue should be set astride a huge globe surrounded by an artificial lake, and a third plan was for a cast-iron column 218 feet high. Finally a 203-ft. granite column was decided upon, but later thoughts on the part of the Government reduced the permitted height to 170 feet.

Exceeds agreed height

Actually, the column which dominates the square today exceeds this height by 14 feet and is thus really illegal.

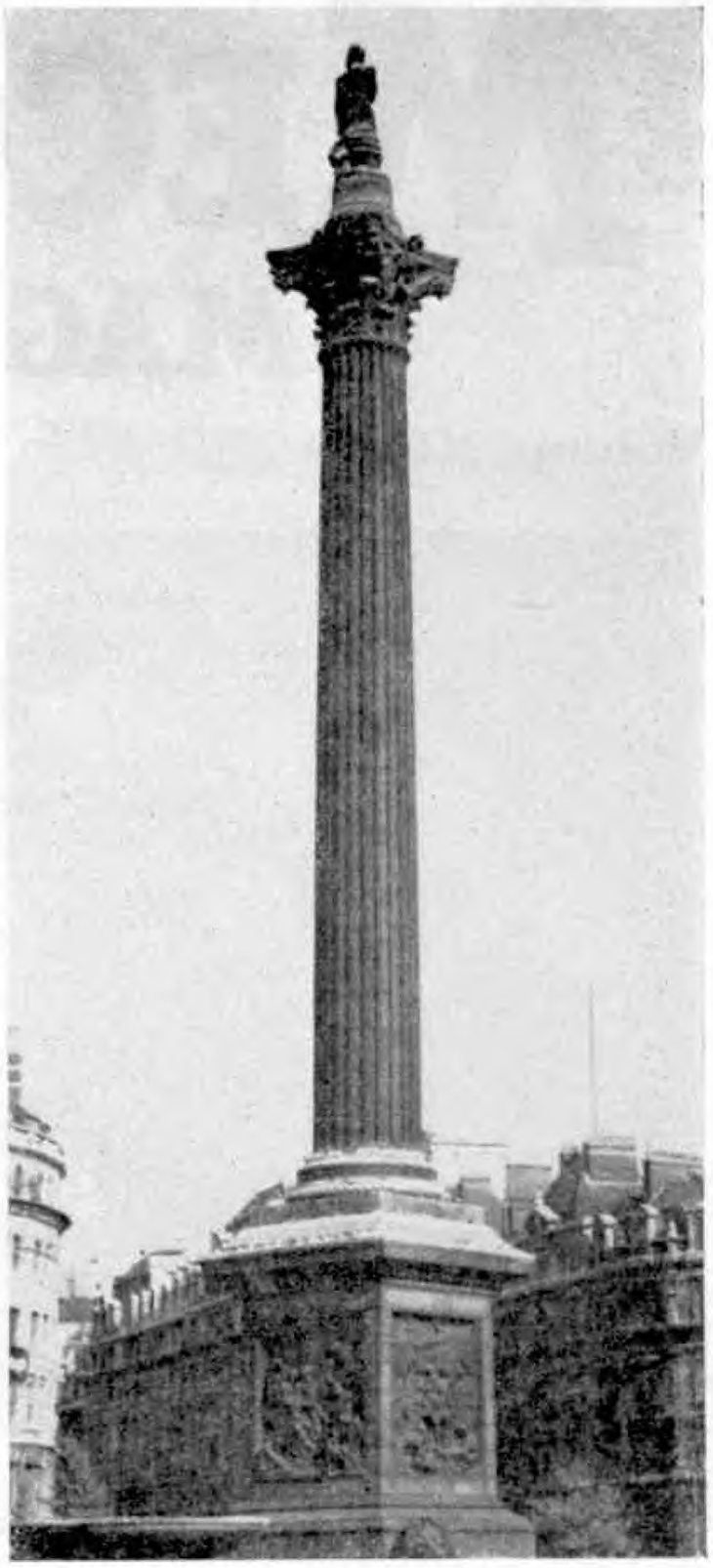
There was heated discussion, too, about the name to be given to the square, while further trouble arose when Parliament was asked to sanction the cost.

Originally, the open space was intended to be called King William IV Square, and when the architect, Sir Charles Barry, wanted to name it in honour of the great naval victory nobody had sufficient courage to advise the king. In the end, Barry himself put the suggestion to him, and the Sailor King immediately scrawled the words "Trafalgar Square" across the architect's map, and added the royal signature. Trafalgar Square it was to be, and no other name would seem as suitable today.

BY
ARTHUR NETTLETON

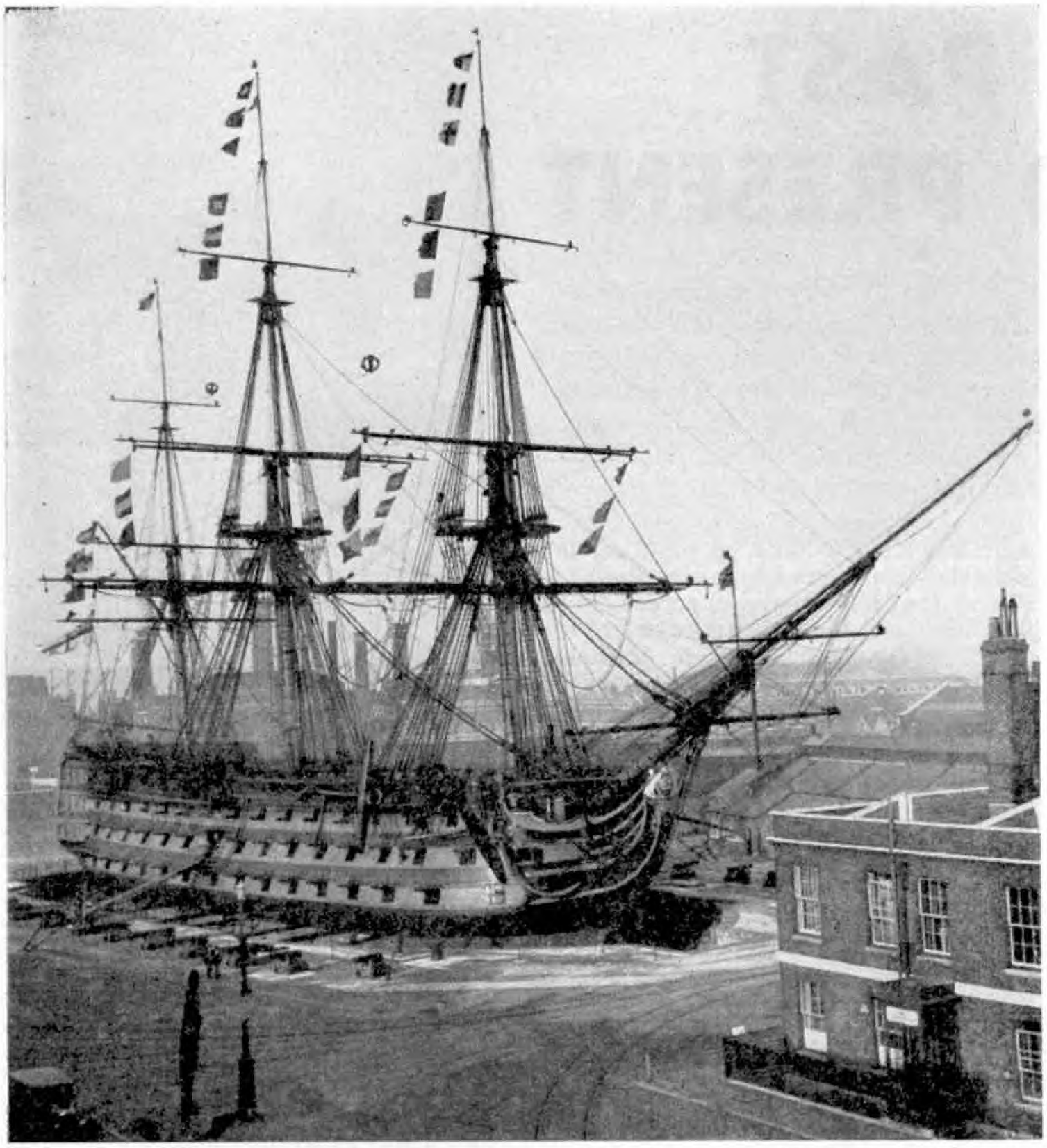
Parliament's refusal to provide a sum which Barry considered necessary for his scheme was also overcome. A public subscription fund was opened, and more than half the cost was met by patriotic people who gave their pennies and sixpences.

Even the famous lions at the foot of the column did not materialise without trouble. The first idea was to have sphinxes there, to commemorate the Battle of the Nile, and when it was decided that lions would be better, the job of designing and carving them was given to William Railton, who had designed the column. His efforts were





The world famous Nelson's Column towers over Trafalgar Square (top right). A dinner party was held on the flat top of the pillar before the statue was hoisted into position. Right: One of the four ornamental lions now at Saltaire, Yorkshire, originally intended for Trafalgar Square. Photographs: Arthur Nettleton.



H.M.S. Victory still presents a proud picture as a showpiece at Portsmouth. Photograph by courtesy of Portsmouth and Sunderland Newspapers Ltd.

ultimately pronounced to be insufficiently imposing, and the noted animal artist Landseer was commissioned to design the impressive lions which are such a striking feature of the square today.

Railton's lions were not wasted, however. They were bought by Sir Titus Salt, the West Riding textile magnate and philanthropist. He had them transferred to his model village of Saltaire, near Bradford, and they can still be seen there.

The statue of Nelson which surmounts the column is considerably bigger and more detailed than it appears to be when viewed from the ground. It was the work of the Scottish sculptor E. H. Baily, is just over 17 feet high, and weighs 16 tons. As it was considered impossible to hoist such a heavy figure in one piece to the top of the column, it was made in parts, but Londoners were first allowed to have a close-up view of it.

More than 100,000 people flocked to Trafalgar Square to see it on the ground, and they were surprised to notice that Nelson's medals were reproduced in faithful detail. They were still more astonished to observe that the medals were as big as saucers.

Another event before the figure was raised was the holding of a banquet on the flat top of the column! Fourteen of the workmen engaged on the monument shared this unique meal.

Hoisting the statue

To get the statue into position, a vertical railway was placed over the scaffolding surrounding the column, and the two halves were raised in turn, an inch or two at a time. It took two six-hour operations to hoist them to the top.

Even with more modern equipment the statue is one of the most difficult to reach. It is examined closely only at fairly infrequent intervals, but inspections through binoculars are made more often.

Once or twice the figure has had to be repaired with cement to remedy deterioration caused by the weather—and by the blast of bombs which fell nearby during World War II.

Up and down Britain are further reminders of the famous admiral whom we honour each Trafalgar Day by placing flowers at the foot of the Nelson Column in London. His flagship, H.M.S. Victory, is now a showpiece at Portsmouth, and is the world's oldest warship still preserved in her original state. Moreover, no other existing naval vessel has had such a remarkable history. Before she became Nelson's flagship she had many years of naval service to her credit, and had actually been "invalided out" when the admiral saw her. She was then being used as a slave ship, but he so admired her lovely lines and proud shape that he had her reconditioned and refitted for his own use, and she went into active service with the Fleet again.

She continued to serve with the Royal Navy until seven years after the Battle of Trafalgar, when she was berthed permanently at Portsmouth and became almost forgotten. Then, in the early 1920's, public interest in this veteran flagship was aroused by a report that she was in danger of being broken up. Although she was being used as a cadet training establishment and signal school, her days seemed now to be numbered. So a national fund to pay for her restoration was opened, and since 1928 she has been another national memorial to Nelson. *Victory* is rather more than a naval monument, however, for even today the main cabins are used as the headquarters of the local Commander-in-Chief.

Bath, too, has memories of Nelson (he came to a house in Pierrepont Street in 1780, after his expedition to Central America) and on several occasions he put up at the Three Cups Inn, Harwich. Norwich is proud of the fact that he was educated at the grammar school in that city, and the City Council chamber possesses souvenirs associated with him.

The old rectory at Burnham Thorpe, Norfolk, where Nelson was born, no longer exists, but the village church there contains a lectern made of wood from H.M.S. *Victory*.

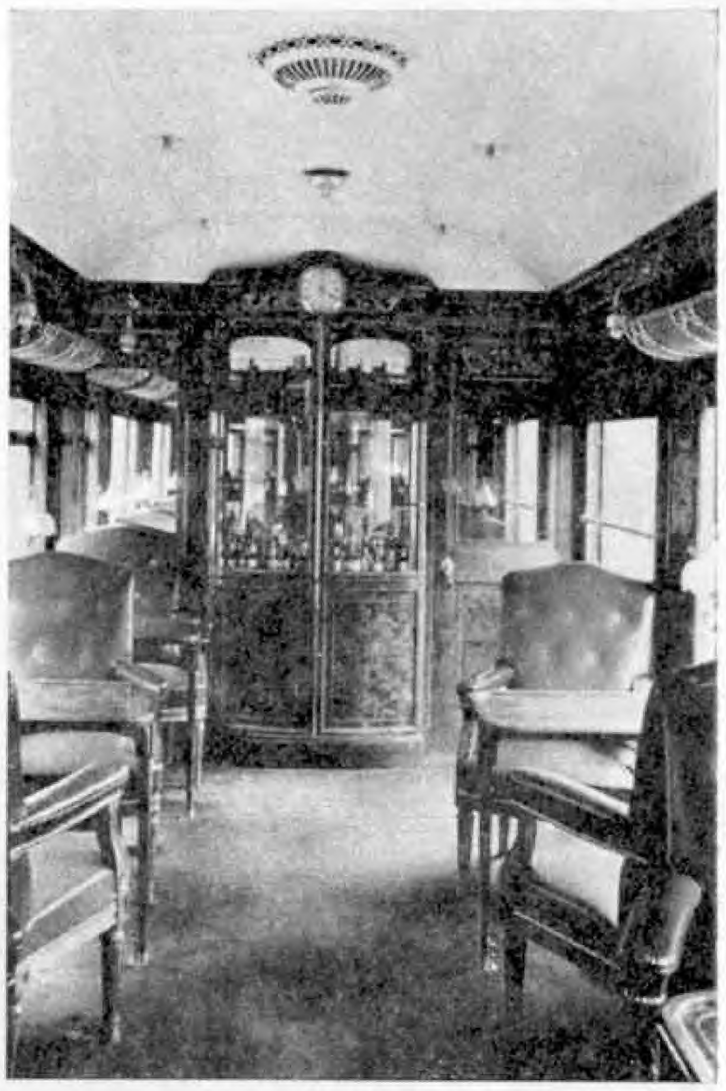
Let us end with a question: Can you say where there is another Nelson's Column, two-thirds as high as the familiar one in Trafalgar Square? You will find the answer on page 385.

"BRISTOL IN THE 1890's"

Readers in Bristol and district who are interested in the past history of that city will find much to fascinate them in Reece Winstone's series of pictorial books dealing with Bristol in the past. *Bristol in the 1890's* contains 186 half-tone illustrations from the Reece Winstone Collection, many of them photographs of buildings and other landmarks which have disappeared in the ever-changing scene. Other illustrations show how public transport was organised 70 years ago; the introduction of electricity for street lighting in 1893; "The Electrophone", of 1894, by which men sat in their comfortable Club rooms and listened through headphones to music transmitted by telephone a quarter of a mile away; and so on. Caption notes add greatly to the interest of the illustrations. The book costs 10/– post free and can be obtained from the author, Reece Winstone, 23 Hyland Grove, Henbury Hill, Bristol.

PULLMAN, PAST AND PRESENT

HE gave the world a new standard in railway travel and the world gave him immortality by using his name as a hallmark. This pioneer, this "one-man revolution", was George Mortimer Pullman, an American whose name is today emblazoned across railway passenger cars in many lands. Like Diesel of engine fame, Hansom of the cab, and Lord Brougham of the carriage, Pullman has given his surname to the Oxford Dictionary where today it is synonymous with the highest standards of luxury travel.



An interior view of a 1914 Pullman "Mary Seaton", in service on the Caledonian Railway. The illustrations on this page are from photographs by the Pullman Car Company, Limited.

BY IVAN BROADHEAD

Pullman was born in Brocton, Massachussets, on March 13, 1831. He was one of those amazing men who had very little education, yet built empires for themselves out of sheer good taste.

In 1853, when he was 22, Pullman made a night journey by rail between Buffalo and Westfield—a distance of 58 miles. The car in which he travelled was uncomfortable, and while trying to sleep, so Pullman said later, "*I was thinking how the car might be improved.*" But, without any experience or capital, there was little he could do about it then, and his thoughts had to remain just ideas. Later, he managed to persuade the Chicago and Alton Railroad to let him modify two of their coaches in accordance with his ideas, and these immediately captured the fancy of the travelling public. After the American Civil War he produced his masterpiece, appropriately named *Pioneer*, breaking every conceivable tradition of railway coach design current at the time.

The car portrayed a radical departure from existing practices, not only from the standpoints of design, weight, and solidity, but also in the elaborate and artistic nature of its interior fittings and decorations. The railroad authorities of the day were unwilling to take up the idea, but ultimately one factor which contributed to success for Pullman was an agreement by the Michigan Central Railroad to run trains composed partly of ordinary coaches, and partly of Pullman vehicles, in which travellers were required to pay an extra charge. It turned out that the only people riding in the old cars were those who grumbled because they could not get berths in the new ones!

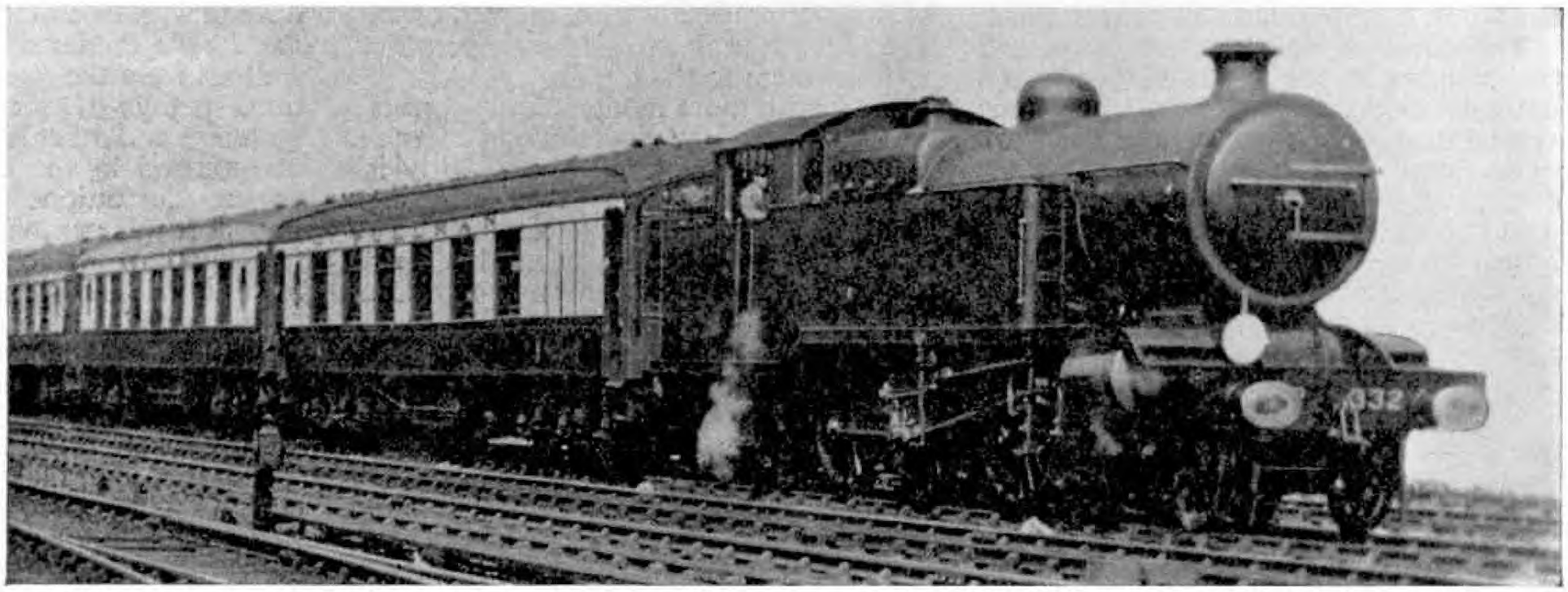
Pullman built more sumptuous, more lavish, and more expensive cars as he pursued his desire to offer the highest possible standard of comfort. After comfort came amenity, and soon Pullman was able to introduce his first "hotel car" in which passengers were able to have a meal while travelling.

Pullman started to build his famous cars in a shed rented from the Chicago and Alton Railroad, but by 1870 his business was so extensive that he started to build his own town complete with works, shops, houses, and so on. It was erected on a 3,600-acre site fourteen miles south of Chicago and this, too, bears his name. Today, it remains a memorial to a far-sighted man.

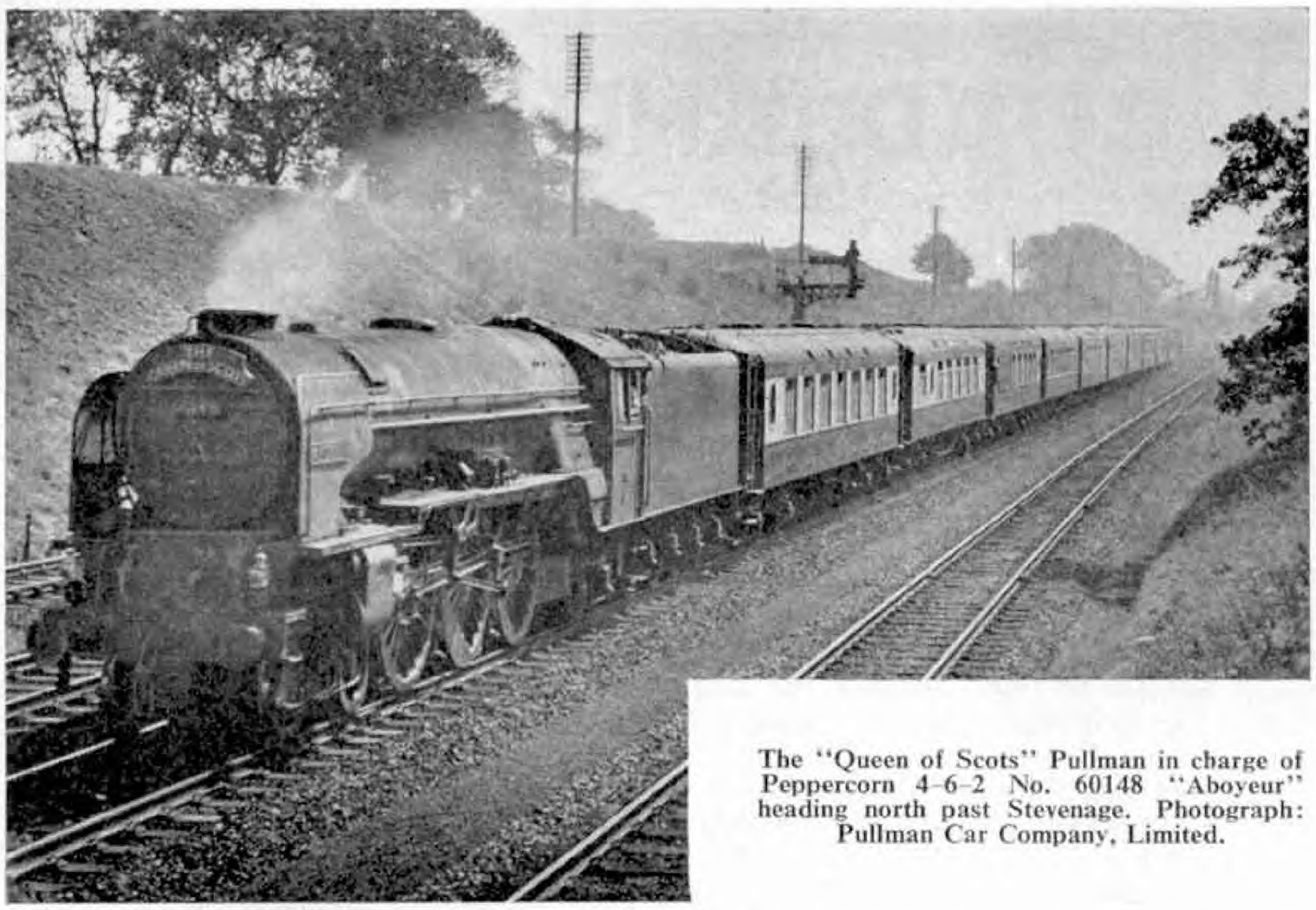
In 1873 Pullman was invited to London to meet the directors of the Midland Railway. Before returning to America he had made a contract to build and operate eighteen Pullman cars on the Midland Railway.

Until these Pullman vehicles were introduced into Britain, the sight of a railway coach resting on more than six wheels was almost without precedent. Other innovations included huge bronze Argand lamps, a notable improvement on the smoky fittings to which the public were accustomed, and an oil-fired water heater which maintained a comfortable temperature. Inside, the Pullman cars surpassed in splendour any railway passenger vehicle previously seen in Britain.

On September 26, 1879 the Great Northern Railway introduced a Pullman car named *Prince of Wales* between King's Cross and Leeds which was the true forerunner of the services we know today. Gradually other railway companies began to introduce Pullman cars into their services, but it was the London, Brighton and South Coast Railway that really popularised the all-Pullman train, although



The "Southern Belle" in the later days of the London, Brighton and South Coast Railway. The engine is No. 334, one of the well-known Brighton "Baltics".



The "Queen of Scots" Pullman in charge of Peppercorn 4–6–2 No. 60148 "Aboyeur" heading north past Stevenage. Photograph: Pullman Car Company, Limited.

the first regular Brighton Pullman service, on November 1, 1875, was provided by a single car attached to the 10.45 a.m. Victoria–Brighton. In December 1881 a four-car *Pullman Limited Express* started a regular service to Brighton, making two return trips each weekday and one on Sundays. On account of its Sunday running it was nick-named *The Sabbath Breaker*. The service was not an immediate success, for Sunday running was discontinued and from December 1, 1882 ordinary first-class coaches were attached to the Pullman trains on weekdays.

In December 1888 three new cars were introduced for a regular all-Pullman Brighton service, this Pullman formation being the first in the country to have gangway connections through closed vestibules. It also had the distinction of being fitted with Buckeye couplings and drawgear. Six-wheeled luggage vans were built to match the Pullman cars, one of them being a six-wheeled van carrying an axle-driven dynamo for lighting the train. They were frequently referred to as "Pullman Pups".

In 1898 the 60-minute schedule, which has been maintained practically ever since on this route, was inaugurated and, in 1899, the train became known as the *Brighton Limited*. A later development was the introduction in 1908 of the *Southern Belle* service between London and Brighton, its seven cars making up what was then described as "The most luxurious train in the world". In 1915 the train began to include third-class Pullman cars and on January 1, 1933 the steam-hauled Pullmans were replaced by all-steel electric stock, to become, in 1934, the *Brighton Belle*. This is probably one of the best known trains in Britain. It was featured in a well-known film and still maintains the 60-minute timing over the 50¾ miles between London and Brighton.

Pullman cars were also in service for a period on the London and South Western Railway between Waterloo and Bournemouth, and they were to appear many years later in the *Bournemouth Belle*, an all-Pullman service introduced in 1931. For a time Pullmans ran on the London, Chatham and Dover Railway, but it was not until 1910 that Pullman travel became associated with the best Continental boat trains between London and Dover or Folkestone.

In 1926, the all-Pullman *Fleche d'Or* service was introduced between Calais and Paris, connecting with the S.R. all-Pullman *Continental Boat Express*, subsequently named *The Golden Arrow*. But this and all other services were suspended during the second world war. Immediately afterwards, however, existing cars were renovated and new ones built so that additional services could be provided. These included the *Tees–Tyne Pullman* in 1948 and the *South Wales Pullman* in 1955. Three years later another, *The Master Cutler*, was introduced between King's Cross and Sheffield, replacing the service with ordinary stock previously run to an. from Marylebone.

Development of the East Coast services occurred after the first world war. Pullman cars were provided in 1920 on the *Hook Continental* and on trains to certain important coastal resorts. In July 1923 the *Harrogate Pullman* was introduced between King's Cross, Harrogate and Newcastle, and was soon extended to serve Edinburgh, and later Glasgow, as the *Queen of Scots*. From July 1928 new stock was used for this latter service and the *Queen of Scots* became the first all-steel Pullman train to run in this country. More recently, this service has received some cars of an entirely new character as part of a programme of replacement of many of the older cars. These embody certain features of B.R. standard coaching stock, but retain the dignified Pullman style and livery.

The Pullman Car Company, Limited was first registered in Britain in 1882 and it remained American property until Mr. Davison, later Lord Dalziel, acquired the Pullman interests in this country in 1907–8. Until 1908 all the Pullman cars operating in Great Britain were manufactured in America and assembled here, but the new vehicles for the *Southern Belle* were built in this country by contractors, and this practice has continued. Initially the Pullman cars in Britain were in the same livery as the American cars—a rich chocolate brown with gold lining and decoration, but the well-known umber and cream was introduced in

(*Continued on page 385*)



The diesel-powered Midland Pullman makes a striking picture as it approaches St. Pancras. Photograph by M. Edwards.

A Welcome To The M.G. Midget

ROAD AND TRACK

I MUST admit that, as the enthusiastic owner of a Z.B. Magnette, I am biased where M.G.'s are concerned, and while I was a little disappointed to find the new M.G. Midget resembling so closely the old-established Austin-Healey Sprite, it is, nevertheless, the first Midget from the Abingdon factory since 1955, and a welcome addition to the range of small sports cars.

PETER LEWIS
writes about events in the motoring world

The *Marque* M.G. dates back to 1923 when M.G. Number 1 was built—a Morris Oxford chassis with an engine of American design, developed by the Hotchkiss Company of France in the factory set up by them in England during the 1914-18 war. In the early stages of production a number of engines were built with push-rod operated overhead valves, and the late Cecil Kimber, then Sales Manager of the Morris Garages Ltd., in Oxford, obtained one of them. And so the car, later to be referred to affectionately as "Old Number One", became the first of a long line of M.G's.

The two-seater Morris Oxford Special, with its racy body minus a windscreen, cycle-type wings and handbrake lever outside the body had a performance as impressive as its looks, for the 4-cylinder, 1,547 c.c. engine gave the car a top speed of over 80 m.p.h., and won "Old Number One" a Gold Medal on its first competition appearance, in the hands of Cecil Kimber, in the 1925 Land's End Trial. Now an exhibit in the Morris Museum, the first M.G. (the letters are the initials of the Morris Garages, the original business undertaking of Lord Nuffield) is still in full running order and the "Old Gang" at Abingdon have a deep and understandable affection for this fine car.

The first M.G. Midget was marketed in April 1929 and, once more, Cecil Kimber looked to Morris Motors, this time for the basis of a car that had to be small, sporting and cheap, to supplement the range of 4 and 6-cylinder M.G.'s that had followed "Old Number One". He found the Morris Minor, a fabric saloon, selling at £120, which possessed a tough, lively, overhead-camshaft engine. From the chassis, engine, three-speed gearbox and transmission of the Minor, Cecil Kimber built the M-Type M.G. Midget—an open 2-seater with a 847 c.c. o.h.c. engine giving 20 b.h.p. at 4,000 r.p.m. and a top speed of 62 m.p.h.

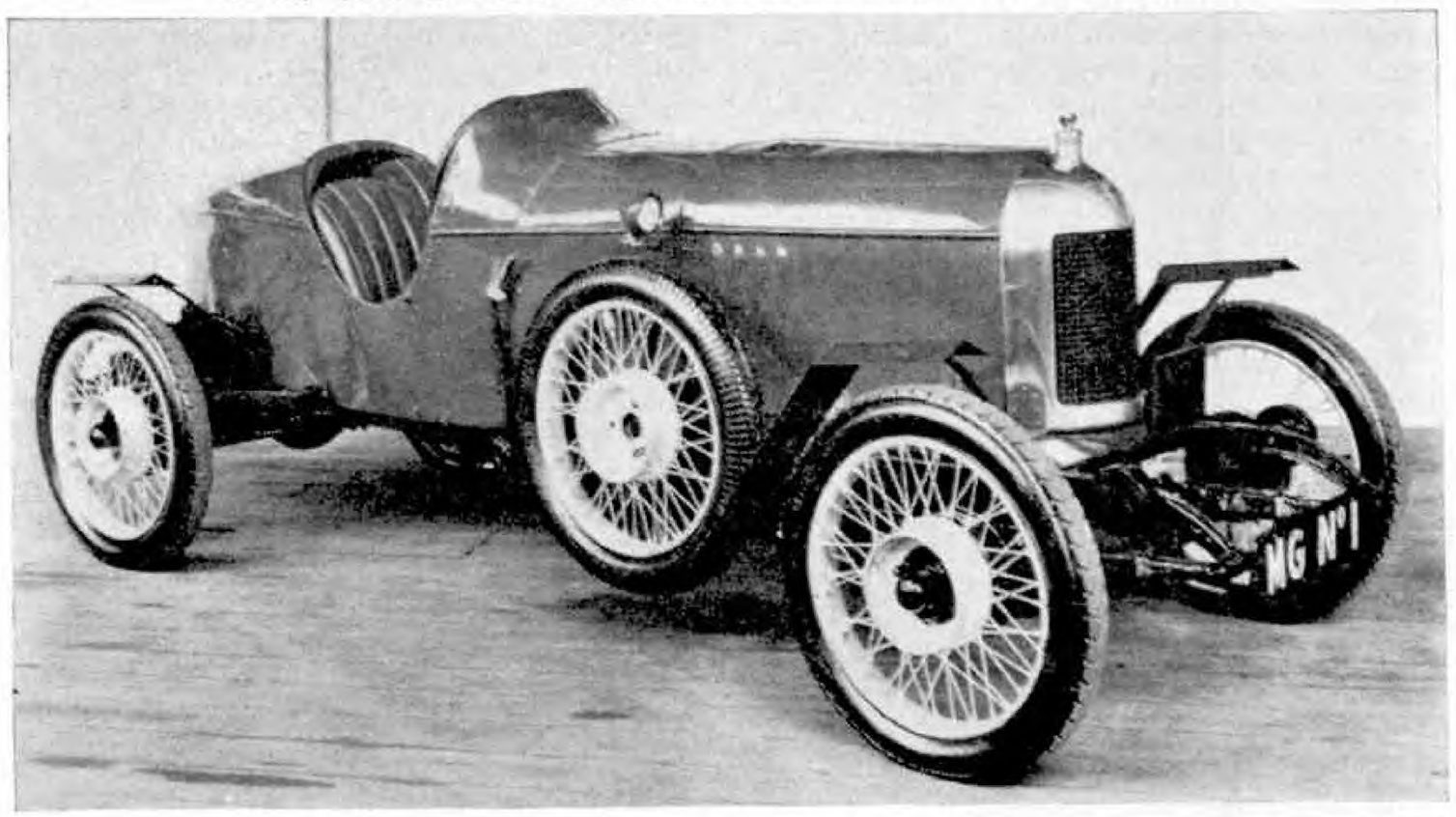
Within a few weeks of their introduction, a team of M-Types won Gold Medals in the Junior Car Club's High Speed Trials at Brooklands. Two years later, at Montlhery, EX.120 (a record-breaker based on the M-Type) became the first 750 c.c. car to do both a hundred miles an hour and one hundred miles *in* the hour. The driver was Captain George Eyston, who was an honoured guest at University Motors, in London, when the 1961 Midget was announced to the Press.

More than 3,000 M-Types were built before the J Series—faster and steadier than the M-Type (thanks to experience gained in motor sport) and with a four-speed gearbox—was introduced in 1932. It was a series easily identified by the combination of cycle-type wings and a "slab" fuel tank. By the end of 1933, just prior to the introduction of the P-Type, more than 4,000 J-Types had been sold, some with superchargers for special competition work.

And so the M.G. Midgets continued to leave the production line at Abingdon, the 939 c.c. P-Types being followed in 1936 by the larger-engined, over 1 litre, T-Types. They were, in fact, hardly Midgets any more.

After the war, it took Abingdon only three months to get into production again, and the T.C.—with a similar body to the pre-war T.A. and a 1,250 c.c. engine giving

The old and the new M.G.'s are seen in the pictures below. The top picture shows the early Marque with its cycle-type wings and the handbrake lever outside the body. Below is a view of the first under-1,000 c.c. M.G. for 25 years—the new Midget, a sleek yet sturdy two-seater which is, in effect, a luxury version of the Austin-Healey Sprite II. It is a car that will command a tremendous following.





Racing Personalities

A Tribute to Count Wolfgang von Trips



The late Wolfgang von Trips.

WHEN the news was flashed around the world on September 10 that Wolfgang von Trips had died near the wreckage of his Ferrari on the Monza race track, while leading in the Italian Grand Prix, the life story of this dashing German driver had already been prepared for presentation in "Racing Personalities", for his place among the world's top drivers was undisputed. In paying tribute to him now, one remembers the great courage and persistence he showed in continuing to drive after having a number of crashes, some of them very severe.

This year, he had driven with great verve and had already won the Dutch Grand Prix, and—at Aintree—the British Grand Prix also. The superiority of the Italian Ferraris for most of the 1961 season had enabled him to display a steady and forceful approach to motor racing. At Aintree, for instance, where he had Stirling Moss at his heels lap after lap, he remained out in front and, unflurried, went on to win.

Von Trips' victory in the Dutch Grand Prix was not only his first Formula I success but was, in fact, the first victory for a German driver since the World Championship was inaugurated in 1950.

Not since those tremendous pre-war days when Germans such as Caracciola, von Brauchitsch, Lang and Rosemeyer dominated the Grand Prix scene with their fabulous Mercedes Benz and Auto-Union cars had a German driver really been in the picture.

Although he was known to the Grand Prix "circus" as "Taffy"—a nickname given to him some years ago by Mike Hawthorn and Peter Collins—von Trips was, in fact, a count and the only son of an aristocratic Rhineland family. Of a reserved nature, he kept himself to himself.

Von Trips took up motor racing in 1954 after gaining fame on motor-cycles, and from that point he had driven a large variety of racing and sports cars. His death has deprived Germany of its leading race track personality.

54 b.h.p.—was turned out in its thousands. Many of these models went to America, where their enthusiastic owners raced them regularly and where they were largely responsible for putting road-racing in the U.S.A. on its feet again.

In December 1949, Abingdon produced the first Midget with independent front springing, the 1,250 c.c. T.D., identified by its perforated disc wheels and large hub-caps; then, in September 1953, the shapely, chunky T.F. went on the market. This was the last but one M.G. Midget before the 1,500 c.c. M.G. A superseded the T.F. 1,500 in June 1955.

The latest M.G. Midget is a true midget again, for it is under one litre in capacity, as were the P.B. and earlier models. With a top speed higher than that of the T.F. 1500, although the latest engine is less than two-thirds the capacity of the T.F., Abingdon's new baby is the fastest un-supercharged Midget ever produced. Such is progress.

The 948 c.c. engine of the 1961 Midget has twin carburetters, overhead valves with double valve springs, and, with a 9.1 compression ratio, develops 46.4 b.h.p. at 5,500 r.p.m. The four-speed, close ratio gearbox gives maxima in the region of 30 in first gear, 50 in second, 70 in third and 85 in top.

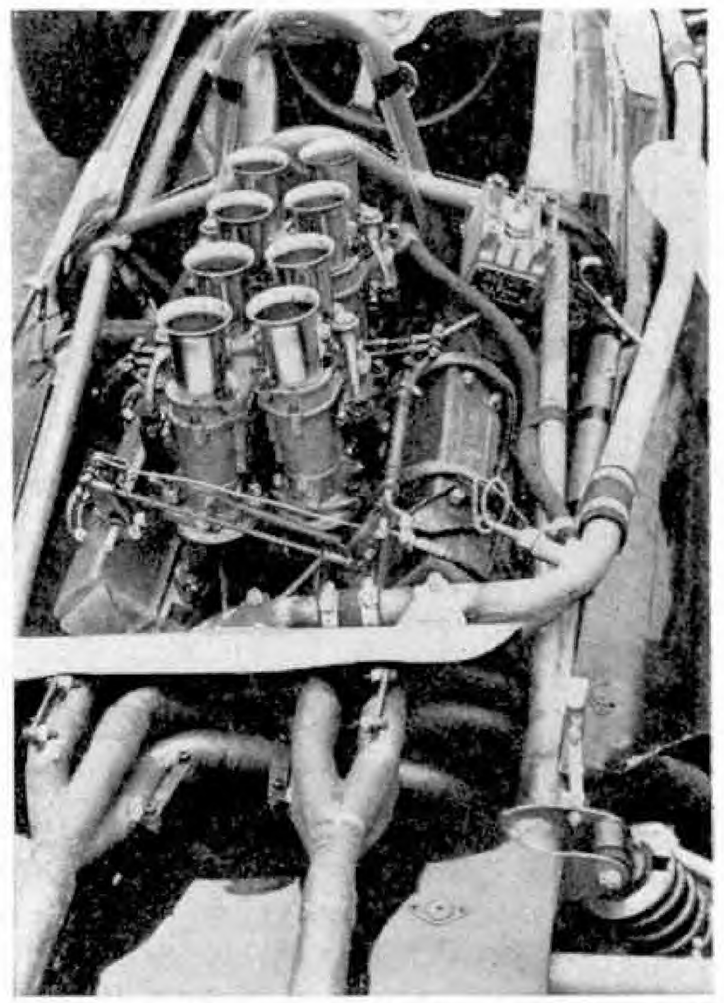
The M.G. motto "Safety Fast" has never been better exemplified and, after 25 years, a real M.G. Midget is back again—a good-looking, zippy sports car, with impeccable handling for under £700. It will delight not only the young but the not so young as well.

THE CLIMAX V-8

No one will deny that Stirling Moss's victory in the German Grand Prix at the Nurburgring, with Rob Walker's Lotus-Climax, was one of the finest races of a brilliant career, and a tonic to British constructors and drivers who have fought a losing battle against heavy Ferrari odds for most of the season. Equally heartening was the long-awaited appearance of the new Coventry Climax V.8 engine which, in prototype form, enabled Jack Brabham to lap the tortuous 14¾-mile Nurburgring circuit fast enough to get a front row position on the grid.

Unfortunately, Brabham crashed on the first lap while in the lead but at least the Climax V.8, designed by Chief Engineer W. Hassan, arrived in time for the latter part of the 1961 season.

It is a rather untidy looking power unit, with its eight exhaust pipes merging into two long megaphone pipes that extend from the rear of the car. The 90-degree V.8 engine has two overhead camshafts to each cylinder block, and there are four twin-choke Italian Weber carburetters mounted on tall, vertical induction pipes and grouped between the two banks of cylinders. Untidy it may appear, but Coventry Climax would not have allowed the engine to be raced in 1961 unless they had been satisfied with it and—together with the new B.R.M. V.8 engine—it should enable our drivers in 1962 to bid once more for the World Championship title. A combination of either Climax V.8 (or B.R.M. V.8) could give Stirling Moss that elusive honour.



A close-up of the new 1½-litre Coventry Climax V.8 engine—Britain's answer to the V.6 Ferrari power unit.

BOOK REVIEWS

All sorts of people have a special interest in ropes and knots—sailors, dockworkers, mountaineers and Boy Scouts and even the housewife who runs a clothes line across the garden, or hauls up the kitchen rack. Yet, how many of these realise just how many types of rope there are, and the differences between them. *Knots and Splices* by Charles E. Gibson (12/6d), another Arco Handybook, deals in a most interesting fashion with this specialised subject.

* * * *

If you like action in the stories that you read then *Chaka, The Terrible* (Arco, price 10/6d) will provide it in full measure. Against a background of tribal warfare among the Zulus at the beginning of the nineteenth century, it tells the life story of Chaka, one of the many sons of the king of the Zulus; of his rapid rise to superiority over other boys of his age by reason of his courage and strength, and of how, while still a young man, he became a natural warrior and leader. Dramatic circumstances enabled him to become undisputed head of his people. A brilliant general, he recruited a large army, and by a series of battles subjected most of the surrounding tribes. His ruthlessness with all who failed him earned him the nickname from which the story takes its title. Like all great men, Chaka had enemies, and the story ends on a tragic note—his assassination by two of his half-brothers.

OLD SHIRT-FRONT OF THE FAR SOUTH

BY FRANK ILLINGWORTH

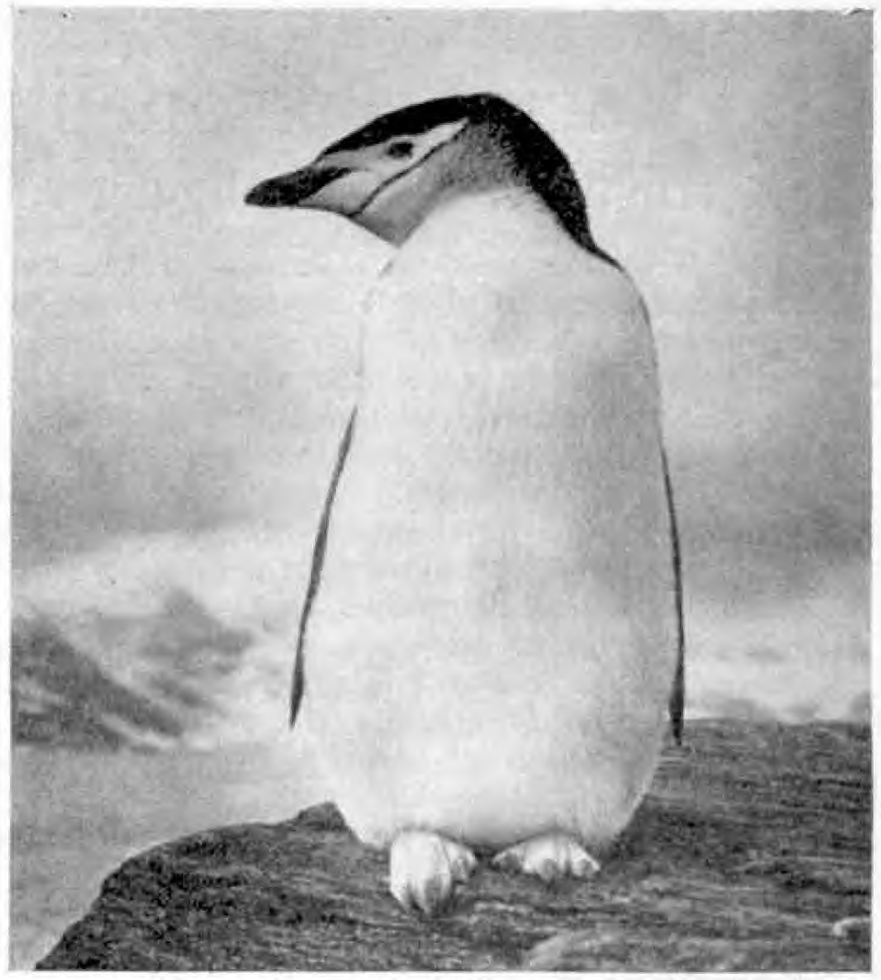
SCIENTISTS are studying the world's strangest birds—the penguins. Among other things, they want to know if penguins mate for life, if there are such things as penguins' graveyards and whether penguins have a homing instinct. Recently, they have had the answer to question number three. Not long ago, two Adelie Penguins with numbered tags on their flippers, flown by an American biologist from Wilkes Land, due south of Australia, to McMurdo Sound, on the other side of the vast Antarctic Continent, were seen waddling past the Wilkes Land base huts—making straight for their nest site. Since penguins are flightless, these two "perkies" must have swum and waddled across 1,600 miles of ice-floes—to their home!

As for the second question, the American explorer Dr. David Murray has stated that when a penguin feels death approaching it plods off to die in a secret graveyard. Following a penguin plodding dejectedly inland he came to what he described as "a pool with sick penguins gazing into its depths, which were white with the 'shirt-fronts' of dead penguins". Is this a general happening among penguins, the scientists are wondering?

Another point: what is the total penguin population of the great Antarctic Continent? Well, since single penguin "rockeries" of 50,000 birds are quite common, the total could run into millions.

The penguin could well be called a phenomenon—one of the world's wonders. For instance, one species, the Emperor—a big fellow standing waist-high to a man and weighing up to six stones—brings its young into the world in mid-winter when the mercury hovers around 70 below zero (102 degrees of frost!) and the polar winds shriek at 100 miles an hour across the 10,000-ft. thick ice cap.

The scientists would like to know a lot more about this strange inhabitant of the South Polar Continent. Far from migrating to avoid the winter's cold, the penguin sits it out with a solitary chick.



There are thirteen varieties of penguins. Here is the famous Adelie Penguin, which congregates in huge colonies. All the illustrations to this article are by Polar Photos, London.

But what happens to the penguin species that leave the shore ice when the winter darkness comes down like a pall? Just how do they spend the dark months? Do they paddle among the ice floes hundreds of miles out to sea, where fish are plentiful; or do they go to some winter resort of the penguin world, as the penguins about to die seek out their secret graveyard?

Penguins—there are thirteen varieties—are found in Australia, New Zealand, on the Equator in the Pacific, and on Africa's East Coast. But they are most numerous in the Far South where, in summer, their *ark aark aaark* forms a background to daily life at the many scientific stations there.

The penguin lived in Antarctica milleniums ago, when that huge area was tropically lush, and scientists taking part in penguin research may discover how the bird changed its habits—even its shape—to meet changing conditions. They might also find out whether there was once an ostrich-sized penguin, this following on the discovery, in 1958, of the petrified remains of what seems to have been a giant penguin.

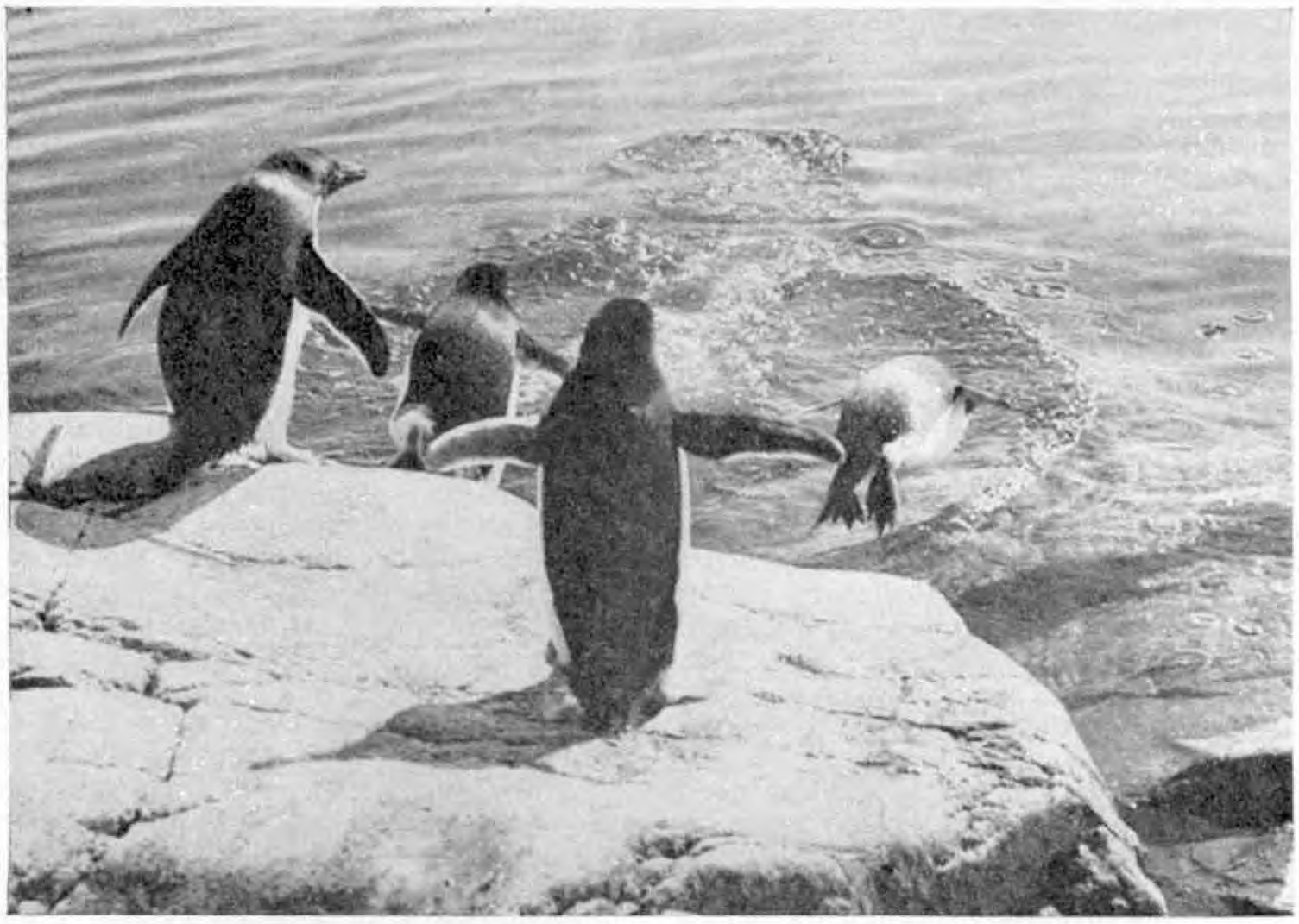
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The penguin has often been described as "a fool in a dress shirt". But research during the last ten years has produced much evidence suggesting that Shirt-Front is far from being a fool.

There is, for instance, the story of the sick bird nursed back to health on kitchen scraps at one of Britain's twelve scientific bases in the Far South. Soon after being released from its pen, the penguin returned



Interview in Antarctica . . . "And what, Mr. Emperor Penguin, do you think about the return of winter?" . . . A member of a British scientific outpost, with recording gear, at a 50,000-strong penguin colony.



to the kitchen door with a long line of hungry friends—and continued to call for a free lunch daily until the end of the summer.

There was the penguin that learned—very quickly, we are told—to recognise, at a glance, the difference between bread and butter and bread and mustard and, when the scientist tried a variation, learned to look on the top side of a slice for butter and on the underside to make sure it was free of mustard.

Again, the penguin knows how long a husky's chain is. Watch him standing inches from the snapping jaws of snarling sledge dogs!

To open the mating season the male presents his chosen mate with a betrothal gift—a small stone. If she accepts it, he glissades away for sheer joy and then returns to start housekeeping. Penguins had been following this drill for untold aeons, until two birds at one scientific outpost discovered that beer bottle tops made good mating presents, whereupon several of their neighbours emulated them, traipsing off to the camp's litter site to forage for betrothal gifts.

* * * *

But there remain ornithologists who accuse the penguin of being the fool of the bird world.

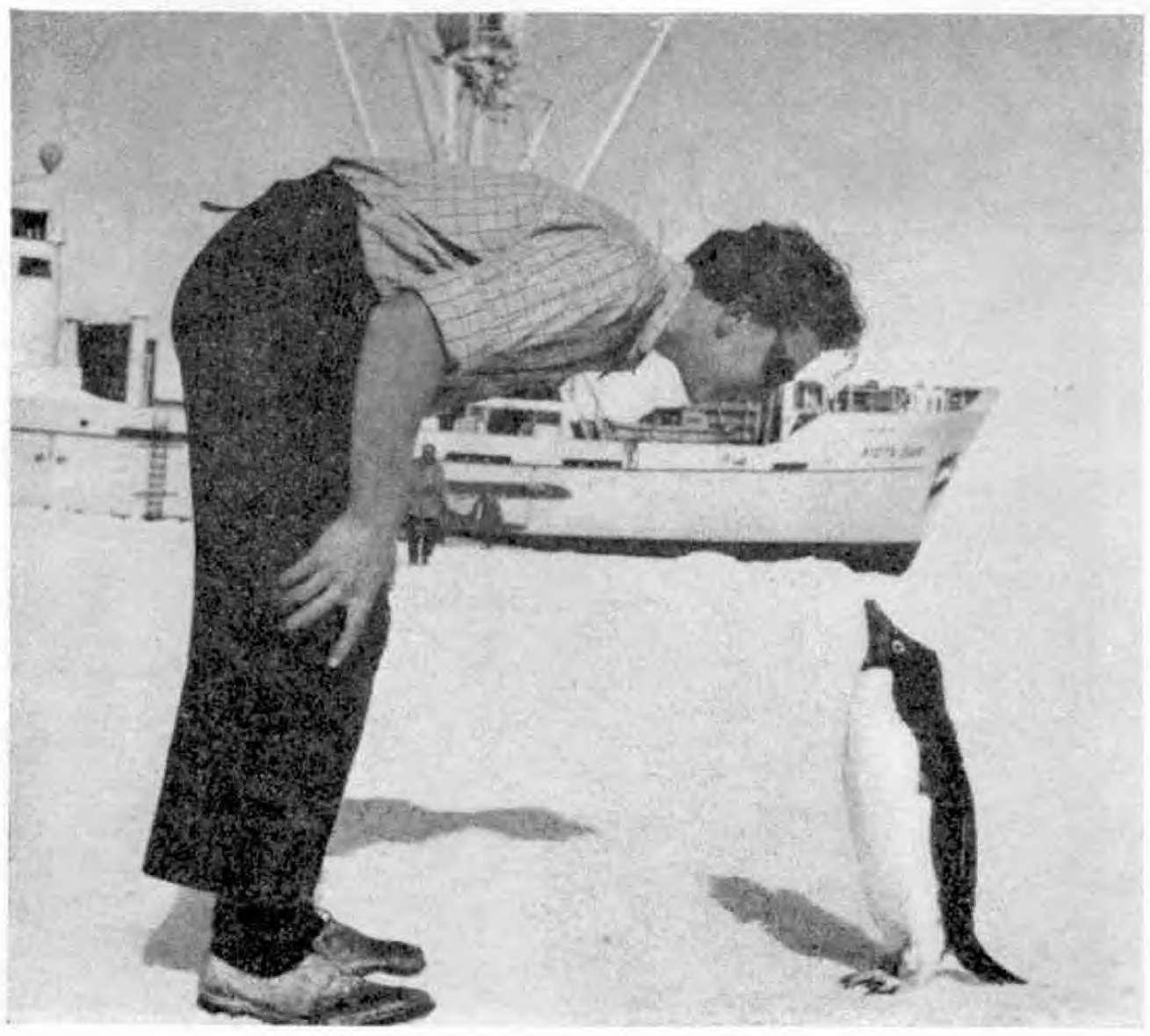
"Watch him," they say, "taking a dip, playing last-man-in, trying to shove the other fellow in first, while the other fellow dodges to avoid being first man in." And they add, scathingly, "Watch him jumping up and down in fury when a skua raids his nest; see him overbalance and go sliding off across the ice on his stomach—like a clown!"

But there is another side to the story. Shirt-Front's greatest enemy is the leopard seal, and the last-man-in act is less likely to be frivolous fun than knowledge that the first man in may become a fat meal for the leopard seals that lurk along the ice edge.

And the penguin that overbalances and slithers away? The quickest way for old Shirt-Front to escape danger is to toboggan away on his stomach. Webbed-footed, he can toboggan faster than a man can sprint . . . and the quickest way off the mark is to over-balance on to his lily-white front.

Perhaps we have learned much about the penguin in the last 10 years. At some 30 polar outposts of science they are piecing together information that will, I believe, prove that the "clown in a dress shirt" is really a sagacious fellow.

Below (left): The Adelie Penguin gets its name from Adelie Land, French-claimed sector of the vast Antarctic Continent. The Adelie, recognised by the white rings around their beady eyes, raise their young in the spring amid confusion of egg-robbing, frolicking, and clowning. Here a representative of the Adelie Penguins greets a newly-arrived explorer during the South Polar summer. (Right) An Adelie female penguin, with her two chicks, figures prominently in this picture. (Top) Penguins playing last-man-in.





AIR NEWS

By JOHN W. R. TAYLOR

CHINA'S FLYING DRAGONS

IN these days, when four countries build nearly all the world's airliners, it is not easy for one airline to appear any different from all the others. However, passengers who board the new Convair 880–M jetliner of Civil Air Transport will need little reminding that its home base is on the Chinese Nationalist island of Taiwan.

The Mandarin Jet, as C.A.T. have named their 880–M, carries on its nose a traditional dragon, symbolising China's continuing quest for knowledge. Inside, authentically-reproduced Moongates are used to divide one compartment from another. Hand-carved dragon and phoenix crests and lion's-head knockers appear on the cabin partitions. Decorative panels over the windows depict the travels of Confucius, and each window shade is imprinted with a "chop", a design composed of Chinese characters conveying wishes for a pleasant journey.

Instead of the usual nondescript plastic furnishings, the Mandarin Jet has striking black seats streaked with silver, while gold is the main colour used for the rest of the interior decor.

Ancient craftsmanship and decoration are blended with jet-age performance, because the Convair 880–M is the fastest jet-liner yet put into service. Four 11,650 lb.-thrust General Electric CJ–805–3B turbojets give it a maximum cruising speed of 615 m.p.h. and a non-stop range of up to 3,750 miles, carrying 94 passengers. Although smaller than the Boeing 707 and DC–8, with a span of 120 feet, it weighs well over 85 tons on take-off with a full load.

FLYING FASHIONS

The "Africargo" freight service operated by British United Airways between London and East and South Africa carries an incredible variety of cargoes. Lush red strawberries and giant pineapples from Kenya are rushed to London's Covent Garden market, so that they can be sold less than 96 hours after being picked. The aircraft that carries them to England might have flown out with a load of vaccines, TV sets, machinery ranging from typewriters to aero-engines, prototypes of motor cars sent to Africa for testing under tropical conditions, livestock for cattle breeders, wedding cakes and even Brussels sprouts.

More surprising is the thriving business in made-to-measure clothes, which enables the customer to receive his or her garments in the same immaculate condition as they left the presser's board. B.U.A. have built into their aircraft special fibre-board or plywood wardrobes known as "Pak-Raks", in which suits, coats and dresses can be hung in polythene bags for protection against climatic changes.

This part of the "Africargo" service is especially popular with the ladies, because it means they can buy the latest styles in clothing from England and the Continent before the fashions have time to change!

FARM PLANE'S FACE-LIFT

When Fletcher Aviation Corporation, of El Monte, California, designed their FU–24 Utility monoplane, they made no concessions to beauty. They wanted a safe, efficient aircraft for agricultural work such as crop-spraying and spreading fertiliser over barren ground, so they gave it a big, thick wing for good take-off performance with a heavy load, a sturdy all-metal structure and a high seat for the pilot, with a good field of view.

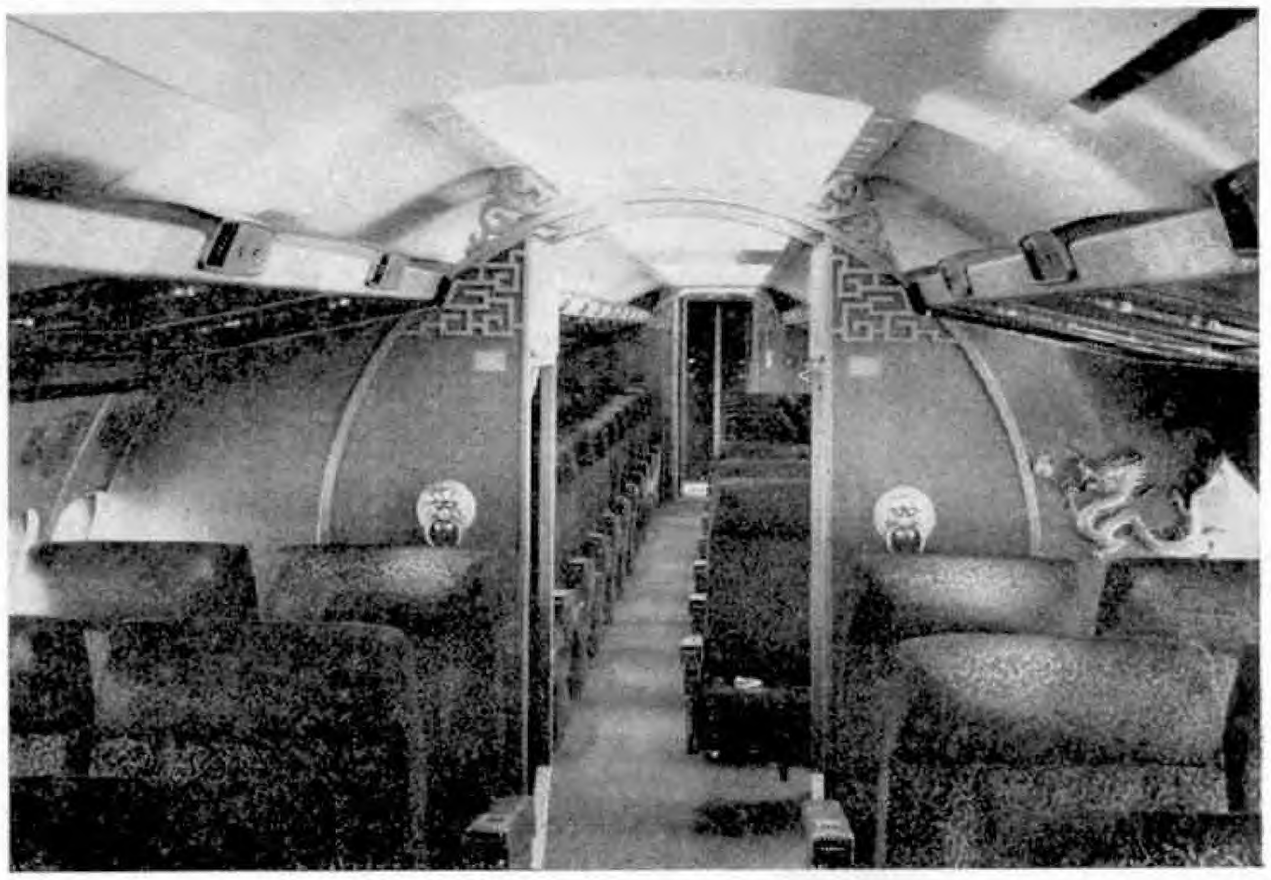
They were rewarded with a contract for 100 from New Zealand, which probably has more farm-planes per head of population than any other country in the world. Six of the Utilities, operated by Robertson Air Service, applied 38,183 tons of fertiliser in one year, without accident. One aircraft spread 230 tons in over 300 flights in a single day.

There has always been quite a lot of room inside the Utility, behind the pilot, and the Fletcher Company has now decided to take advantage of this by producing a six-seat, passenger-carrying version known as the FU–24A. Illustrated on page 357, it is powered by one of the new 260 h.p. Continental IO–470 fuel-injection engines, and is an ideal light transport in areas where airstrips are few, short and rough.

RUSSIA BUYS BRITISH

The first Russian order for aircraft flight instruments of western manufacture has been placed with Smiths Aircraft Instruments. It is for 45 Kelvin Hughes 50,000-ft. altimeters, which are being





A fine picture of the Mandarin jet taking off (above). Right: A photograph of the aircraft's interior, showing some of the unique fittings mentioned in this month's *Air News*.





The forthright, no-nonsense lines of the Fletcher Utility are clearly revealed in the photograph above.

The rotor blades and rear fuselage of the Westland Wessex helicopter fold up to save stowage space.

fitted, in addition to the standard Russian altimeters, in those aircraft of the Soviet airline Aeroflot which operate on routes to and through Western European countries.

One of the difficulties facing Soviet pilots on these routes is that the altitude readings and barometric settings shown by their existing instruments have to be converted from metres and millimetres of mercury respectively into feet and millibars. This often involves a double calculation and is not made easier by the language problem when the aircrew speak to ground controllers. The Kelvin Hughes altimeters, being calibrated in "English" units, will save them a great deal of effort and avoid the possibility of mistakes in future.

£6,000,000 ORDER

Against keen competition from the American Bell Iroquois and Kaman Seasprite, Britain's Westland Wessex helicopter has earned a £6,000,000 order from the Royal Australian Navy. This covers the supply of 27 Wessex machines which will be equipped for anti-submarine duties from the carrier H.M.A.S. *Melbourne*. Deliveries will begin next year and will be completed by mid-1963.

The Wessex was developed by Westland from the Sikorsky S–58 and is powered by a Napier Gazelle shaft-turbine engine mounted behind clam-shell nose-doors. It is already in service with the Royal Navy, and is the first helicopter capable of carrying both anti-submarine detection gear and strike weapons, including homing torpedoes.

A factor which must have played a big part in influencing the Australian choice of the Wessex is that it is fitted with automatic equipment which enables it to seek and destroy its prey in almost all weathers, operating by night or by day, and from ship or shore bases. It can also carry up to eighteen fully-equipped troops, making it ideal for Commando assault duties from aircraft carriers. As can be seen in the picture opposite, its rotor blades and rear fuselage are designed to fold, so that it can be stowed in a small space on board ship.

AERIAL TUCK SHOPS

Five special B.O.A.C. Britannia services were necessary this year to carry children attending school in Britain home to Nigeria for their summer holidays. To keep them happy, each of the 92 young passengers on each flight was presented with a tuck box containing sweets, toffees, and bars of chocolate. In addition, the aircraft carried specially large supplies of "pop" and other soft drinks.

HERALD BEATS MUD AND DUST

More than 30 senior Army and R.A.F. Staff Officers watched a Handley Page Herald prove its suitability for battle-front military duties in dust-bowl and mud-bath conditions a few weeks ago.

Vegetation and top soil were cleared from a 2,000 yard strip at the R.A.F. Station at Martlesham Heath, in Suffolk, to expose the sandy sub-soil. The strip was then deliberately cut up into deep in-line and cross furrows until it looked like a battlefield, with conditions far worse than anything that would normally be encountered by aircraft in front-line transport service. Some patches had only one-tenth of the normally-accepted minimum bearing-strength for aircraft in this close-support category.

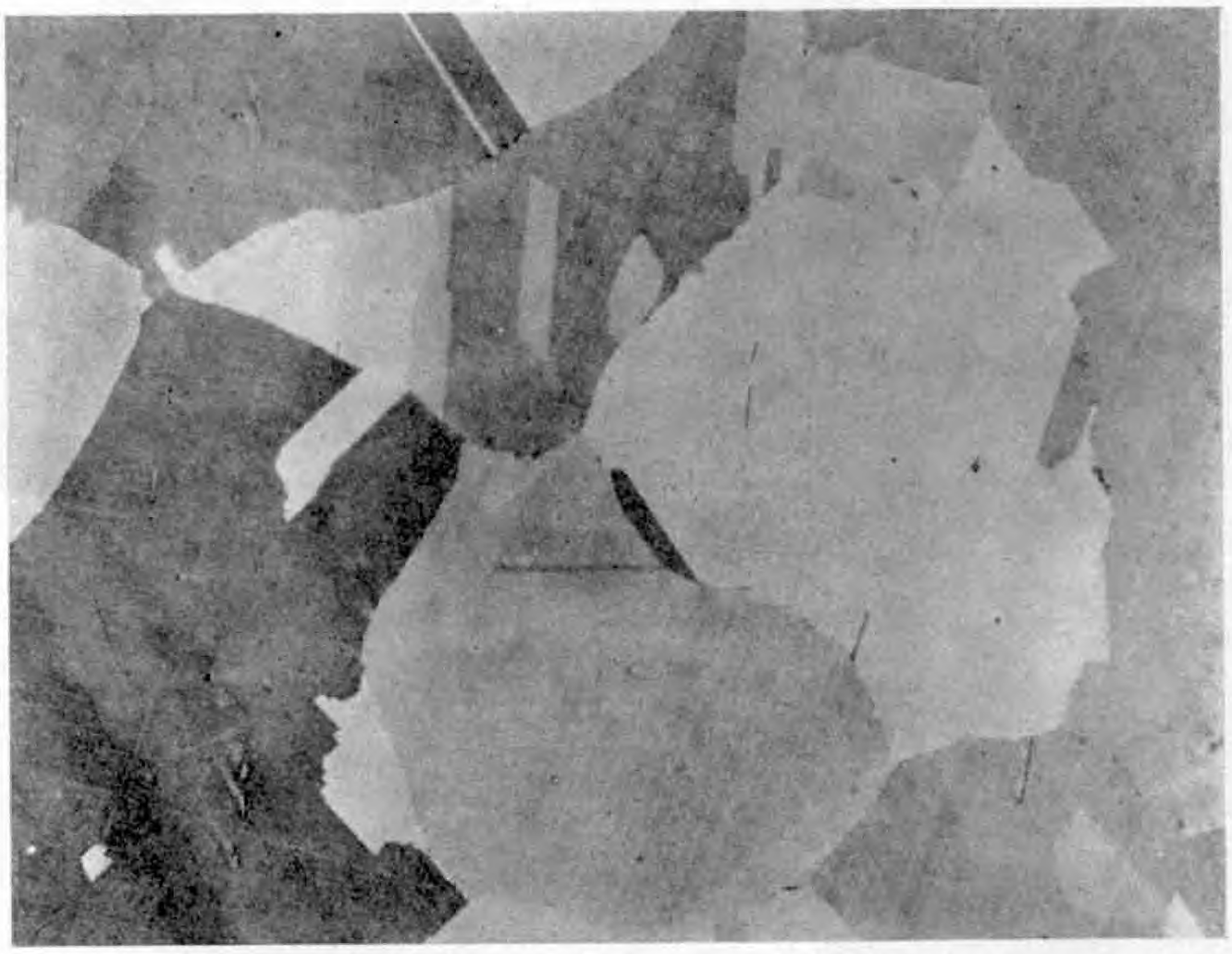
In sun and heavy rain, the Herald completed extensive taxying trials on the strip, and took off and landed in a 17-knot cross-wind many times, using only 300 yards of it, even when carrying a full load.

(*Continued on page 385*)

Below: The Handley Page Herald photographed during the severe take-off and landing tests at Martlesham Heath.



STEEL—A MASS OF CRYSTALS



No—not an aerial photograph of some remote country area, but a piece of manganese steel seen through the microscope after the toughening heat treatment (water quenched) at 1,000 deg. C. The grains are now composed entirely of Austenite except for a few harmless inclusions. All the photographs illustrating this article are by Edgar Allen & Co. Ltd., Sheffield.

WHEREVER you look, within the home or outside it, you cannot avoid seeing steel. The washing machine, the pen-knife in your pocket, the Meccano Outfit on your table, the buses and locomotives by which you travel, the ships at sea—everywhere steel appears. But what *is* steel? Of course, you know it when you see it, but that is not enough. Let us see steel as it is when examined under a high-powered microscope.

By ERIC N. SIMONS

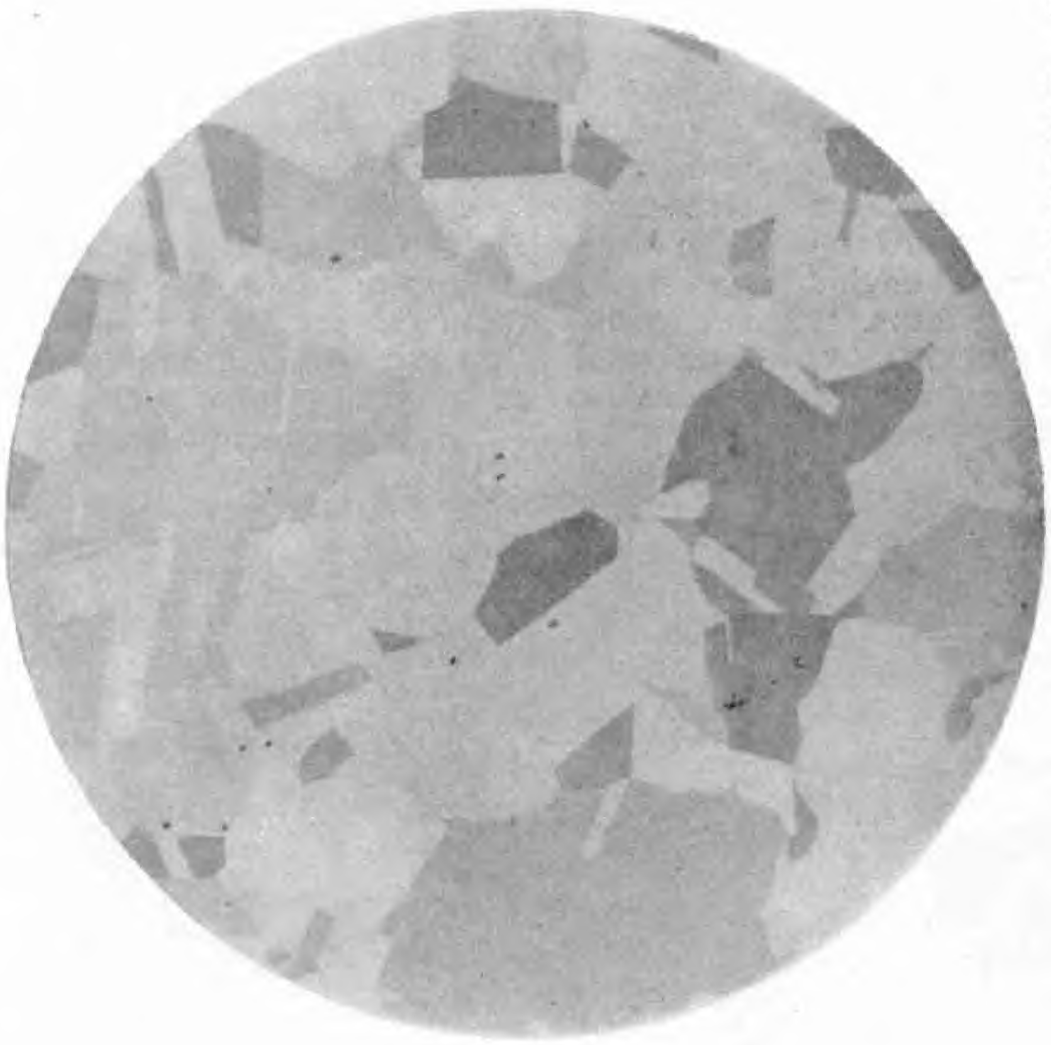
First, instead of being a simple uniform substance, it is a most complicated affair. All steel is made up of crystals, myriads of them, so small that they can only be seen under the microscope lens. Steel is, then, a crystalline substance. But what is it made of? To say "crystals" is not enough. We know that crystals of snow are made of frozen water; we know that the crystalline substance we put in tea to sweeten it is of sugar. Crystals of steel, similarly, are crystals of something, and that something is mainly iron to which an element known as carbon is added. It is a hard element, and one form of it is the diamond; another is graphite and yet another is coal.

But there must not be too much carbon in the steel or it will be either brittle, like cast iron, or soft and tough, like wrought iron, such as you see in ornamental iron gates. The addition of carbon to iron produces strength and hardness, which is what steel requires, and it has been found that there must never be more than 1½ per cent. of carbon present in steel.

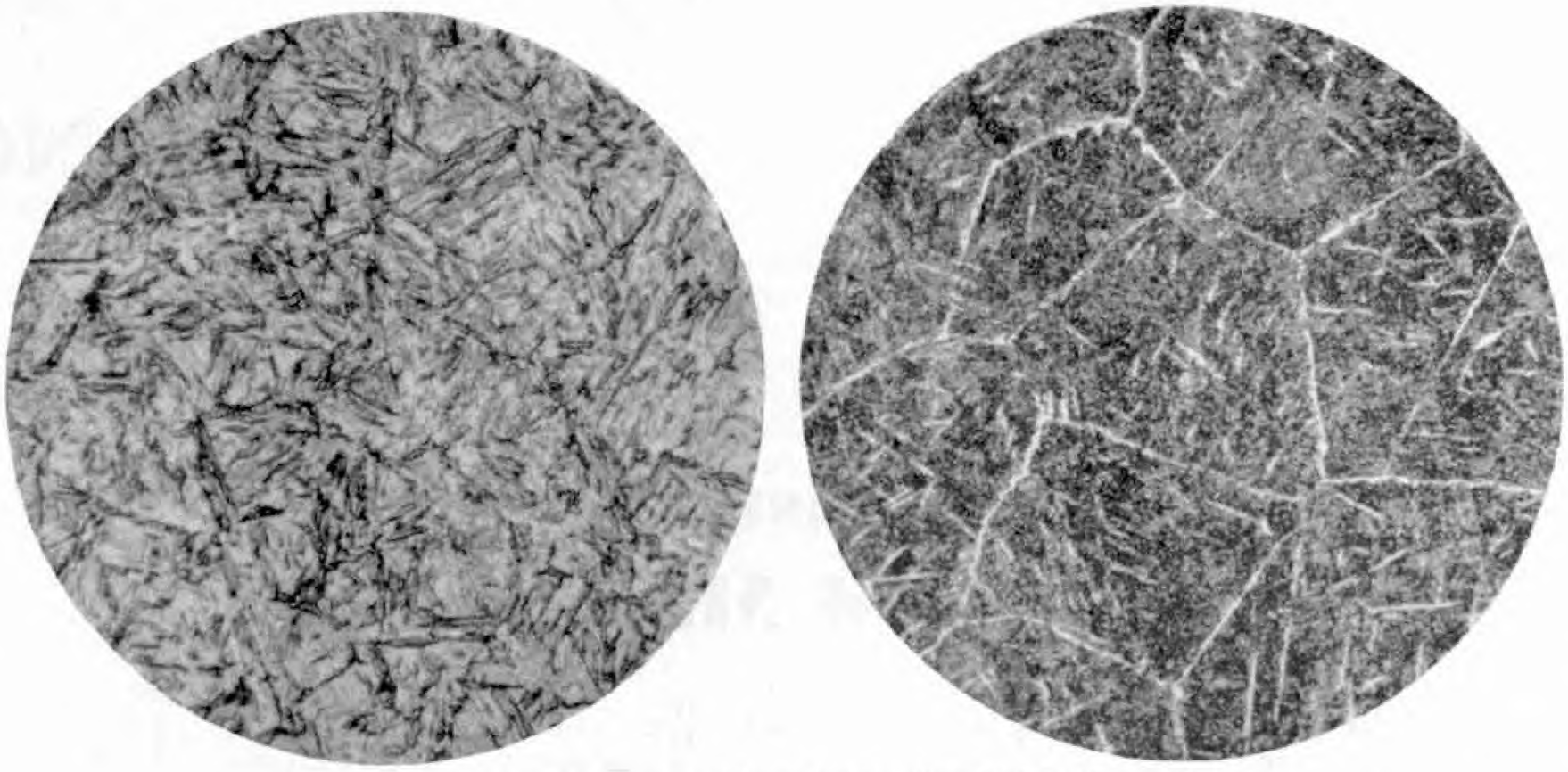
If you could just take some molten iron and drop that amount of carbon into it, it would be easy; but, in fact, the carbon must not be present in the steel in its own form. In other words, it must not be "free". It must disguise itself by combining chemically with iron to form a compound or chemically mixed substance known as *iron carbide*. If the iron were not in this compound form with the carbon, the steel would be useless for its particular work. Free carbon—that is, carbon not chemically compounded with iron, is soft and brittle and easily reduced to a powder, so obviously it would not be useful in parts that have to be strong and hard. Iron carbide, on the other hand, is intensely hard, and although brittle as compared to iron, does not powder so easily as free carbon. Carbide of iron is often given a special name—*Cementite*.

So we see that steel is in reality an alloy of iron and carbon, or, more correctly, of iron and iron carbide. In cold steel as it comes from the rolling mills and forges, the iron carbide can be seen quite distinctly under the microscope, but if the steel is heated to make it harder (by being plunged into a cold liquid, or subjected to a blast of air to harden it still further) not even the microscope will show up the particles or crystals of the carbide. We will try to discover why.

When we have iron and iron carbide in the form of steel, we are only at the beginning of our discoveries. Up to now, the particles of iron carbide are separate from the particles of iron. The steel is cold, and has to be properly hardened before it can be used as, for example, a cutting knife of a steel-cutting tool. To harden steel, it is necessary first to heat it to a certain temperature and then sharply cool it in some medium that will chill it abruptly. The cooling or quenching medium may be cold water, brine, oil, or even the air.



The high-powered microscope reveals further characteristics of Austenite.



Left: Martensite, another steel constituent (enlarged) and (right) Cementite.

Let us take the heating operation first. As soon as we heat the steel to the correct temperature, the tiny particles of iron carbide dissolve in the great mass of iron just as sugar dissolves in tea. This is called "going into solution". Once this temperature has been reached, the carbide particles disappear just as sugar disappears in tea and cannot, therefore, be seen under the microscope. This does not mean the steel turns liquid; it remains as solid as before, but the iron has, all the same, dissolved the carbide. Such an occurrence is known as a solid solution, and this solid solution of iron carbide in iron is in turn known as *Austenite*, after a great British metallurgist, Sir William Austen. It is entirely different in its properties from steel as it was before.

When we dissolve sugar in tea, there is a limit to the amount the tea will dissolve, and this is called the saturation point. Any that cannot be dissolved remains in the bottom of the cup. The same is true of steel. The saturation point for a solid solution of iron carbide in iron is not reached in so simple a way as this, but the principle involved is exactly the same. In time, no more carbide of iron can be dissolved, so it is rejected, or precipitated from the solid solution known as austenite. Heating the steel to a sufficiently high temperature enables more to be dissolved, just as hot tea will dissolve more sugar than cold tea.

Let us pass on to something else of importance. Take two different molten metals, say gold and silver. If we pour one of these into the other, they produce a perfectly uniform liquid solution, like soap in water or sugar in tea. Now let this solution of gold and silver cool. It can be shown by experiment that it begins to freeze (i.e. solidify) at a specific temperature depending on its composition, and goes on freezing or solidifying until another specific temperature is reached, and then it becomes completely solid. In other words, there is no such thing with these metals as an immediate change from liquid to solid. Solidification takes place gradually over a range of temperature. How extensive this range is depends on the relative proportions of gold and silver in the solution. In alloys of gold and silver, it is only when the composition is all gold or all silver that solidification takes place at one fixed, unchanging temperature.

Let us now consider water. When pure water is cooled, its temperature falls regularly down to zero (0 deg. C.) at which it begins to freeze. During the whole period of freezing, its temperature remains unchanged. Suppose we add, say, 2 per cent. of salt to the water. We then find that freezing does not begin at zero, but at a lower temperature, say −2 deg. C. From this temperature down to −22 deg. C. crystals of ice are precipitated. This means that the remaining liquid solution is getting saltier. When the temperature is down to −22 deg. C., the liquid freezes into solid ice, and what we get are small crystals of ice and salt closely intermingled, but not chemically blended. They are more like a mixture of sand and sugar.

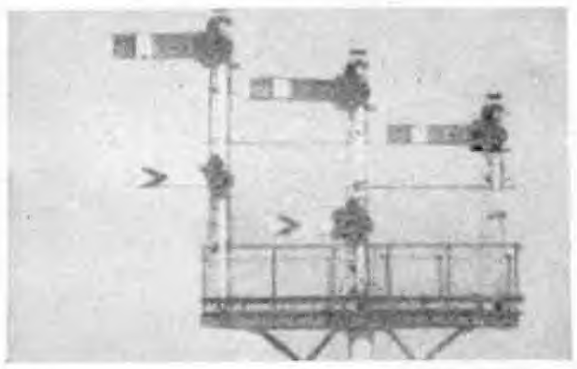
It does not matter how much salt you put in the water, as soon as the temperature falls to −22 deg. C. the solution will solidify, although the ice will not have started to form so soon. In other words, the temperature range of freezing will have been narrowed. Whatever the amount of salt you put in the water, the final composition of the solid frozen material will be the same—23.5 per cent. of salt and the rest water. If there is more than this in the original solution, it will be thrown out first as salt, and ice will not start to form till a lower temperature is reached. That is why ice on footpaths and roads in winter is often melted by sprinkling with salt.

Now these principles apply equally to solutions of iron carbide in iron. Molten steel consists, as has been seen, of carbon or carbide dissolved in liquid iron. Before freezing or solidification can occur, the temperature must fall to a specific temperature in the same way. With all alloys containing between 1.8 per cent. and 4.3 per cent. of carbon, the liquid which finally freezes behaves just like the mixture of salt and water; but with alloys containing less than 1.8 per cent. carbon, freezing takes place much more in the way that it does in the case of the gold–silver alloys; that is to say, for each alloy there is a range of temperature over which freezing takes place, but the final liquid to freeze consists of the solid solution of austenite. A steel containing about 1 per cent. carbon begins to freeze at about 1,450 deg. C. and is completely solid at about 1,250 deg. C.

What happens to steel when it cools to a point below 1,250? When gold–silver alloys cool down to room temperature, they do not change any more in structure; but steel does. At a temperature of about 780 deg. C. it begins to throw out or reject particles of pure iron because the solution cannot absorb so many when it is colder. As the temperature falls, more and more of this pure iron is thrown out, until in the end we are left with crystals of pure iron, and a mass of crystals of austenite (iron carbide dissolved in iron) containing the equivalent of 0.9 per cent. of carbon at 695 deg. C. At this temperature, this remaining quantity of austenite deposits pure iron, and carbide of iron, side by side (like the salt and ice side by side in the water—freezing solution). But these two substances are being deposited from a solid, not a liquid, solution. The pure iron crystals are known as *ferrite*. Below 695 deg. C. there are no further important changes of structure in steel, so far as we need go.

"PAINTING AND DRAWING"

Most people would like to be able to draw and paint well for, apart from the enjoyment to be found in these methods of expression, there is always so much around us which is worth committing to paper or canvas as a permanent record. Art students will find *Painting and Drawing* by Alfred Daniels (12/6d.) a well written and instructive guide. Mr. Daniels, a practising painter and teacher, shows how to develop talent, latent or obvious, in a book which, among other things, deals with water colours, outdoor sketching, oil painting and composition. An Arco Handybook, *Painting and Drawing* contains illustrations and diagrams to clarify the themes dealt with, and half-tone pictures of various works of art.



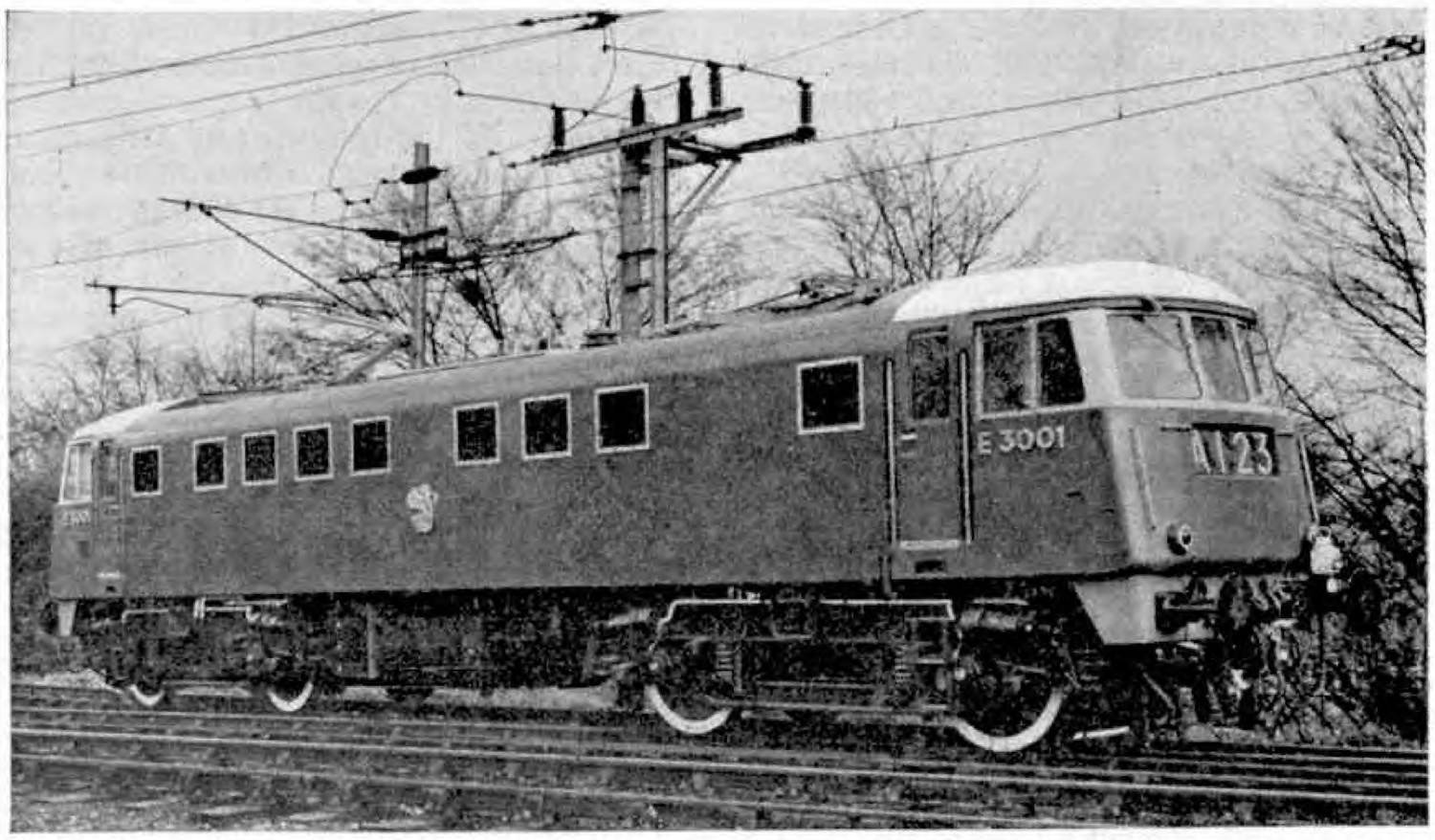
RAILWAY NOTES

Contributed by R. A. H. Weight

Traction Contrasts Around Manchester

MY visit to Manchester in July was the first for more than two years, so there was much to see and sample: revolutionised methods of traction and styles of rolling stock, newly-rebuilt stations, entirely changed and improved timetables, and so on. In the November, 1960, *M.M.*, J. W. Gahan graphically described the introduction of the L.M.R. first-stage main line electrification between Manchester and Crewe employing the high-voltage overhead 25,000-volt A.C. system, and the enormous constructional and other tasks preceding it.

The smart and extensive Piccadilly Terminal, replacing the out-moded London Road Station, provides, at adjacent platforms, for a variety of traction methods and equipment. There are 1,500-volt, overhead-wire ex-Great Central Line electric trains, as operated for some time, some being multiple-unit; and others on the services to or from Sheffield, or beyond, hauled by green locomotives, many of which are named. The fast Crewe line services introduced in 1960–61 employ powerful bright blue Bo–Bo electric engines, and there are speedy four-coach-set multiple-unit local trains running at regular intervals on two routes. Diesel railcar passenger sets work to and from Buxton or other fairly close destinations to which electrification has not been extended.



No. E3001, one of the type A Bo-Bo 3,300 h.p. electric locomotives used on the L.M.R. Manchester-Crewe section electrified on the overhead wire system. B.R. London Midland Region official photograph.

Steam locomotives are now rare; only one 2–6–4T was visible, and the Royal Scot, Jubilee and other 4–6–0s so long the mainstay of southbound express services have disappeared. Type 4 diesels are used to some extent when no change of power is taking place at Crewe. At Stockport, and on the way out there, 2–8–0s were noted with other steam locomotive classes as still general on many L.M.R. routes with freight trains.

The new 25,000-volt local electric trains call at a separate outside through platform at Piccadilly, their city terminus being half a mile beyond at the reconstructed Oxford Road Station, conveniently connecting with the much older 1,500-volt South Junction Line. This carries frequent trains from that point to or from Old Trafford and Altrincham.

SPEEDING TOWARDS CREWE

My first L.M.R. trip with high-speed electric haulage was certainly short and sharp! For the time being only the 31 miles between Manchester and Crewe have been adapted for regular electric running and, as there is a considerable number of the E3000 class locomotives available for service, I found them working in pairs, probably for running-in purposes and in order to gain experience. We had Nos. E3032, English Electric 2,940 h.p., and E3039 General Electric 3,000 h.p., types (there are several slightly different series) on five coaches!

The train was the 4.0 p.m. from Piccadilly to New Street, Birmingham —the quickest on that run—with a mile-a-minute start-to-stop timing for the 25 miles from Stockport to Crewe. This could certainly have been kept in spite of a crawl for signals soon after leaving Stockport, as on nearly level track over 80 m.p.h. was averaged for 14 miles beyond Wilmslow, and we quickly attained a maximum of 92 near Holmes Chapel! Very high speeds have been reached near there on a number of occasions. A severe track repair slowing was encountered after Sandbach, however, followed by signal checks approaching the vast junction outside Crewe, so overall time was 27 minutes —a good deal less than the usual steam schedule prior to last autumn.

South of Crewe, where the electric locomotives are detached from southbound trains and return to the north end of the station in readiness for the next working, steam, or often diesel, locomotives are in charge at present to and from London, Birmingham, Shrewsbury, etc.

TRANS-PENNINE RIDE

In March of this year I reported the introduction on the important, steeply-graded Liverpool–Manchester–Leeds route of *Trans-Pennine* faster services, mainly provided by Swindon-built 6-car diesel set trains. Their four powered cars provide the unusually high total of 1,840 h.p. for each complete set, on account of the

severe gradients on both sides of the Pennines between Manchester and Leeds. Fast acceleration also is a valuable asset after stops and slowings. Five services each way operate through to and from Hull, with overall timings between that city and Liverpool, almost from coast to coast, of less than three hours. As far as possible there are regular-interval departures. There is very comfortable first and second class accommodation—of compartment and centre-corridor types—with buffet and "griddle" service, as mentioned in my previous brief account. Automatic temperature control ensures a congenial atmosphere whatever the conditions outside.

I boarded the 12 noon Liverpool–Hull express at Manchester (Exchange) and logged runs to Leeds and back in identical set trains. There had been delay on the way to Manchester and we restarted there six minutes late, right on to a steep climb past Victoria Station up to Miles Platting and beyond. There was a slight gain to Stalybridge, where a short stop was made to pick up passengers. Another minute was gained over the 17¾ miles to Huddersfield, with a steady speed little below 60 m.p.h. over the seven-mile rise at 1 in 125–150 etc., to Standedge Tunnel, which is just over three miles long, and was bored through high and wild Pennine moorlands. The tunnel is exceptional in containing water troughs, a feature less in demand now that diesel traction is much more in use.

Owing to curvature, little can be done in the way of high speed down the sharp descents on this route, so there was considerable braking, with little travel at over 60 m.p.h. in either direction. There are points at which speed has to be decidedly less.

North of Huddersfield the Heckmondwike–Cleckheaton route, which looks fearsome on a gradient profile, is used. We climbed at 44–48 m.p.h. up 1 in 77–80, for instance, then dropped gently down past many junctions and other lines to arrive in Leeds City Station only 1½ minutes late, in 63 minutes from Manchester. Five minutes had been regained on a much quicker schedule than hitherto possible. From that point, the train was to make a non-stop run to Hull.

On the return trip, there was a late start again from Leeds through waiting for a connection, but with similarly striking performance over that tough 45 miles, 3½ minutes were won back in rough, wet conditions. Travelling right in the rear I enjoyed a rather fascinating view, through the large windows, of junctions, signals, sidings, curves, 2–8–0-hauled freight trains, four-track sections and so on. A stop lasting about 1¾ minutes was made at Huddersfield, as on the outward journey, then again at Stalybridge, eight miles from Manchester Exchange. I alighted to join a useful 2-car diesel connecting service non-stop from Stalybridge to Stockport across the outskirts of Manchester, amid a network of lines, marshalling yards and industrial activity, passing over a length of ex-Great Central 1,500-volt electrified main line at Guide Bridge and so to the newer Manchester–Crewe electric route at Stockport.

MIDLAND LINE SPEEDS

The several L.M.R. main lines of the former Midland Railway from St. Pancras to the north, with their rather difficult grading, have for many years featured fine locomotive performance of various sorts with high downhill speeds at suitable points. Sometimes, the normal general maximum of 90 m.p.h. has been attained and, occasionally, as a special effort with all conditions favourable, even higher speeds have been reached with steam locomotives now being supplanted by diesel.

A record of its kind, so far as is known, was achieved by a Royal Scot 3-cylinder 4–6–0 No. 46143, *The South Staffordshire Regiment*, logged by Mr. Cecil J. Allen, when the 9-coach northbound *Palatine*, after delays and making three stops as booked on a fast schedule, touched 100 m.p.h. down the second stage of the long but moderately-graded descent approaching Bedford and gained 11 minutes in all between St. Albans and Derby. A B.R. Britannia Pacific has also been reliably reported on an exceptional occasion to have reached a three-figure maximum near the same point. The highest speeds recorded behind smaller 6P Jubilee 4–6–0s have been not very much less.

A brilliant hill-climbing feat on the extremely difficult Carlisle main line with a special 10-coach, 350-ton train that had stopped at Hellifield, was the steady maintenance of nearly 60 m.p.h. right up the 15 miles at 1 in 100 from Settle to Blea Moor Tunnel by Princess Coronation 4–6–2, No. 46247, *City of Liverpool*. These big engines are seldom seen on that route, the occasion in question being by special arrangement for a railway enthusiasts' tour.

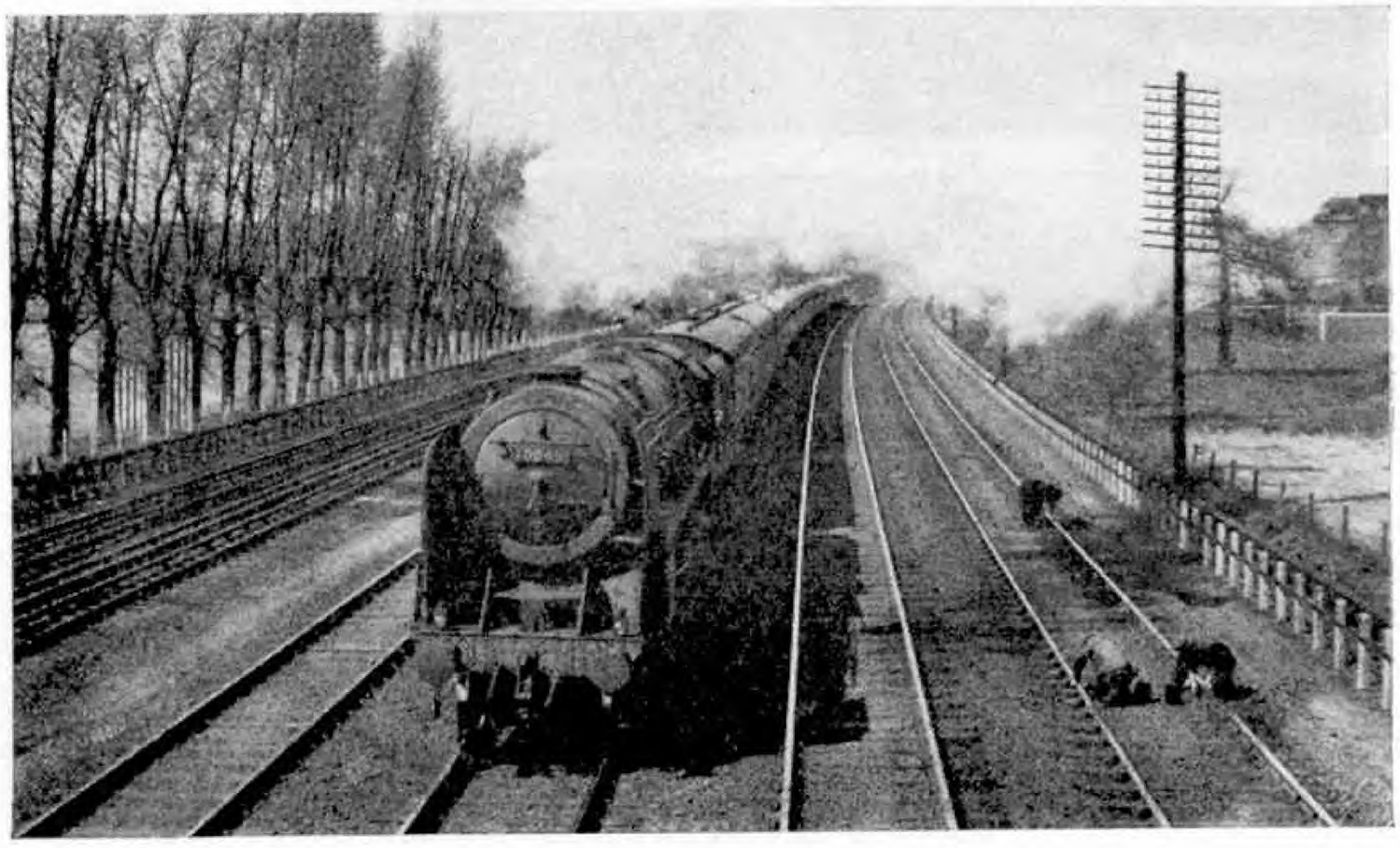
* * * *

The new carriage washing plant at Hull Diesel Multiple-Unit Depot, N.E.R., gives a much more satisfactory external washing of coaches than that obtained by previous methods. A scrubbing action by rotating nylon brushes, with the use of water and detergent, or mildly acid sprays, forms the basis of the cleaning process.



No. 46100 "Royal Scot" in the roundhouse at Nottingham. Photograph by M. G. Martin.

Britannia 4–6–2 No. 70048 "The Territorial Army 1908–1958" with an up express from North Wales. Fishplate oiling is in progress on the right of this picture taken by C. R. L. Coles.



DINKY TOYS NEWS



This picture shows the impressive lines of Dinky Toys No. 959 Foden Dump Truck.

BIG DUMP TRUCK WITH BULLDOZER BLADE

THE Meccano advertisement, "You can move the earth with Dinky Supertoys", which many of you will have seen in various periodicals, is given further emphasis this month by the introduction of another grand new toy which has a special value to those collectors who like to create road-building scenes and similar layouts.

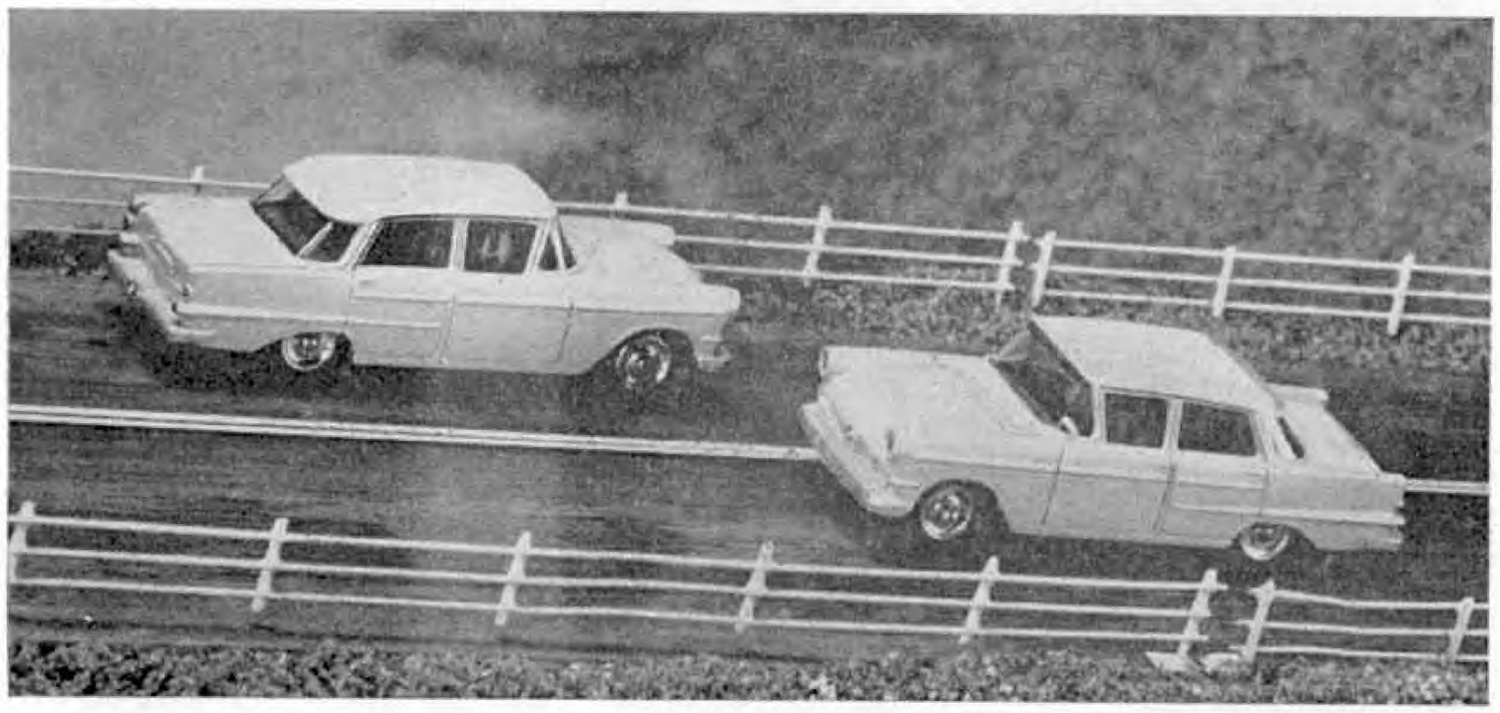
It is No. 959 Foden Dump Truck with Bulldozer Blade, and you see it clearly illustrated in the cut-out photograph at the top of this page. It is finished in bright red enamel with gleaming yellow wheel discs, but perhaps first of all I should tell you a little about the actual model on which it is based.

The prototype is manufactured at the Elworth Works of Fodens, Ltd., at Sandbach, Cheshire, and is, in effect, a heavy duty dump truck. It has an overall length of 22 ft. 2 in. excluding the bulldozer blade, and an overall height, when laden, of 9 ft. 6 in. When unladen, with the platform fully tipped, the overall height reaches 22 ft. 4 in. Overall width of the actual model is 7 ft. 6 in. and the wheelbase is 11 ft. $3\frac{1}{8}$ in., the front track measuring 6 ft. $2\frac{3}{4}$ in. and the rear track 5 ft. $9\frac{1}{8}$ in.

This all-purpose vehicle can be fitted with either a Gardner 6 L.W. direct injection oil engine, which gives a brake horse power of 112 at 1,700 r.p.m., or a Foden F.D.6 two-stroke oil engine which gives 126 b.h.p. at 2,000 r.p.m.

Although the bodywork of the vehicle is the same in either case, the two types are given different official numbers, FGD6 being the one with the Gardner engine and FED6 that with the Foden engine. They are both extremely powerful and can carry a pay load of 33,600 lbs.





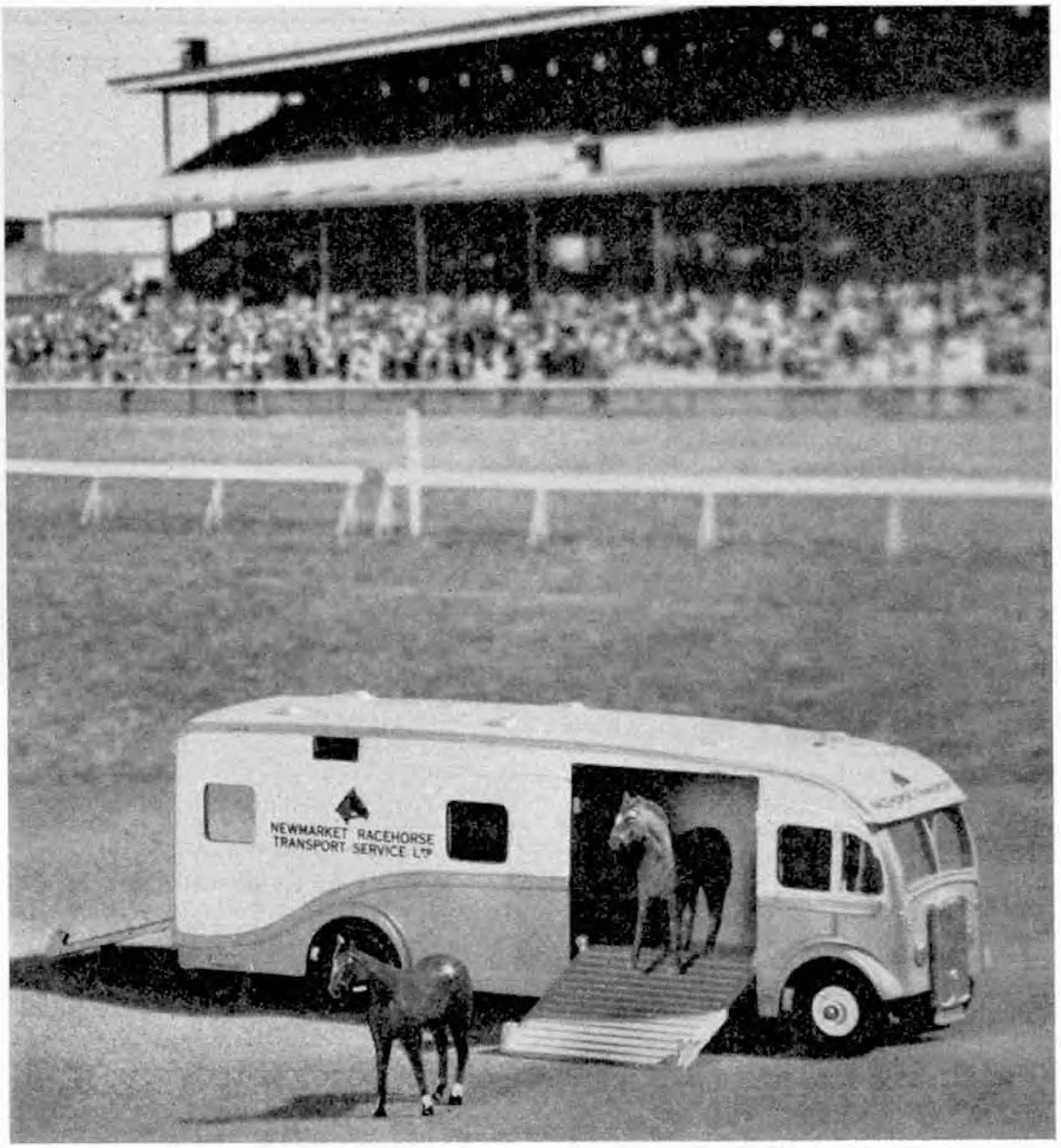
BY THE TOYMAN

The Foden Dump Truck can be seen in quarries and mines everywhere and is extensively used, for instance, in the Cornish China Clay industry, where its manœuvrability and tractive power are extremely useful in the slippery conditions that are encountered there. A large amount of spring deflection on the axles is a special feature which ensures that traction is retained under the most difficult circumstances, and that the load is not jolted out of the body.

Now, back to the Dinky Toys model. Listed as a Supertoy, it is $6\frac{1}{2}$ inches long,

Left (top) The 4-berth Caravan (No. 188) makes a wayside halt during a trek into the country. (Below) Two Dinky Toys saloon cars about to pass each other on a fenced-off coastal highway.

Clever photography was used to create this scene of the Race Horse Transport against an authentic background.



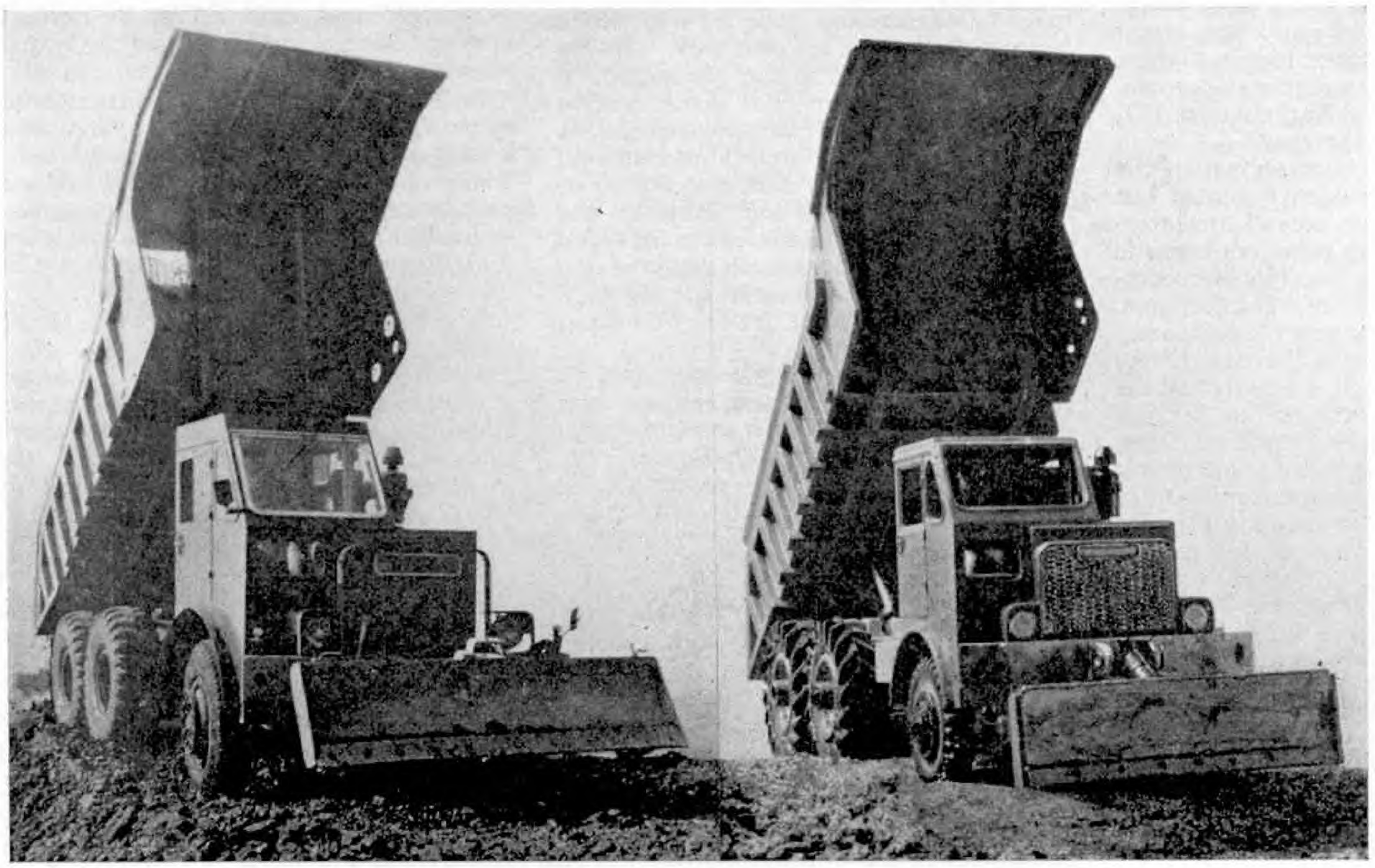
including the bulldozer blade, and has an overall height, when the tipper is not in operation, of 2⅞ inches. With the tipper fully extended its height is increased to something like 5½ inches.

The bright red of the cab, body and bulldozer blade framework makes this miniature eye-catching in the extreme. The front of the bulldozer blade, and the chassis of the vehicle, are finished in silver, and the cab is equipped with windows. A further air of authenticity is provided by the addition of a driver dressed in blue overalls.

Although on the actual vehicle the tipper is hydraulically controlled, the tipping action of the Dinky Toys model is by hand through simulated hydraulic ramps, and this applies to the limited vertical travel of the bulldozer blade as well. Imitation fuel tanks are in place behind the driver's cab, and air filters etc. are situated to the left of the cab over the radiator housing. Finally, the large "heavy duty" tyres fitted on the four rear wheels bear a very close resemblance to the real thing.

Another intriguing Dinky Toys model now available is the new-colour finish horse transport box known as the Racehorse Transport (No. 979). This Dinky Supertoy represents the sort of private horse box used in many parts of this country for the transport of horses to race meetings and, often enough, to show jumping competitions, agricultural shows, etc.

It has a striking two-tone finish of yellow and grey, and carries on the sides,



A MATTER OF COMPARISON

Here is a test for you. Which is the real Foden Dump Truck and which is the model? A picture of this nature emphasises how close to reality the new Dinky Toys miniature is when compared with the prototype.

and over the driver's cab, a transfer of a horse's head. At the side and rear are ramps which are hinged to allow them to be raised and lowered as desired. Two horses moulded in plastic, one of them a grey, are supplied with each model and they provide a splendid touch of realism.

The Racehorse Transport is nearly 7 inches long, and 2½ inches high to the top of the ventilators represented in the roof. You can see from the photograph on the previous page, which was taken against the background of an actual race course, how very impressive the vehicle can look in the appropriate surroundings.



A proud collector of Dinky Toys is William V. Green of Hatfield, Herts., pictured here.

Although autumn is now upon us, camping on fine week-ends will still be a recreation for many people. With this in mind I have this month included in the illustrations a picture of the new Dinky Toys Caravan. The vehicle shown is No. 188 on the Dinky Toys list—the Four-Berth Caravan, containing opening door, windows and interior fittings. It is a useful model for the creation of various scenic effects.

Below the picture of the caravan is a studio scene representing a view on a typical coastal road in Great Britain where a double white line in the centre of the road conveys the stern warning to motorists that they must not, under any circumstances, stray on to the wrong side. These lines, as I am sure all of you know, occur at bends or other points on the road where it would be foolhardy to cross the crown. Two models of the Opel Kapitän (No. 177) are used to complete the view.

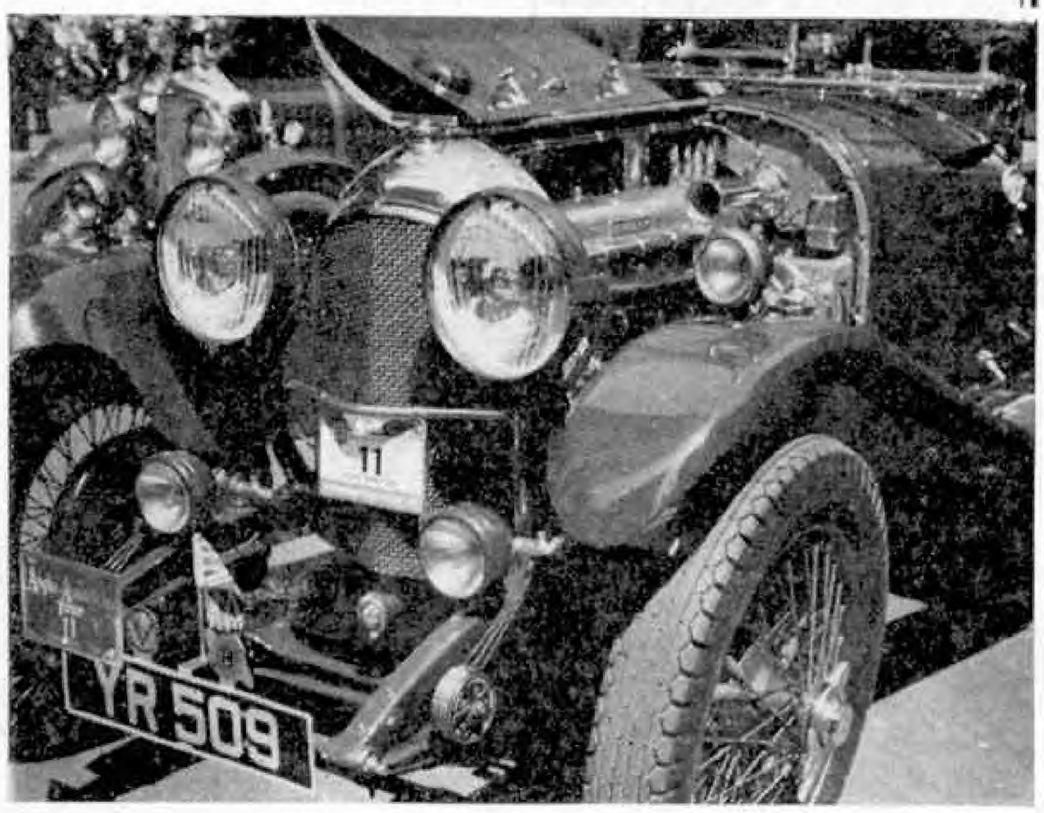
Much interest has been shown in the readers' letters from which I quoted last month, and so in these notes I am introducing comments from other enthusiastic collectors. Discussing No. 186 Mercedes-Benz, John Ritchie of Dunfermline, Scotland, writes, "I am very pleased to say that I am delighted with the new Dinky Toys Mercedes-Benz. It is exactly like the real thing, only in miniature."

John Smithson, of Newcastle-on-Tyne, tells me of a very interesting experiment he made to see how tough our miniatures were; ". . . only after standing for two weeks in water did rust appear on the chassis, and it took even longer for it to start on the wheels", he writes. "I got the rust off very easily, and I think I can say that the Dinky Toys model came through with flying colours."

On Dinky Toys in general, Michael McManamon, of Frimley Green, Hampshire, writes, "My brother and I have been collecting Dinky Toys since we were very young, and we have always thought a great deal of them."

THEY WERE DIFFERENT THEN

No. 8: The Bentley



This 1926 Bentley took part in the 1957 Anglo-American Vintage Car Rally in the U.S.A. Photograph by courtesy of Rolls-Royce, Ltd.

WHEN the noted aero-engine designer W. O. Bentley built his first prototype sports car in 1919, The Autocar *hailed it as "standing alone in its class to give that peculiar and almost perfect combination of tractability and great speed usually to be found in machines made for racing only". And, indeed, this was so, for the original Bentley, a 3 litre, 4 cylinder model, was capable of 80 m.p.h. on the road in complete safety.*

From the outset, the great Bentley tradition was based on racing successes. These began with second, fourth and fifth places in the 1922 Tourist Trophy race and a fine win at Le Mans in 1924, when Duff

By PATRIC BAKER

and Clement covered over a hundred miles more than their nearest rival.

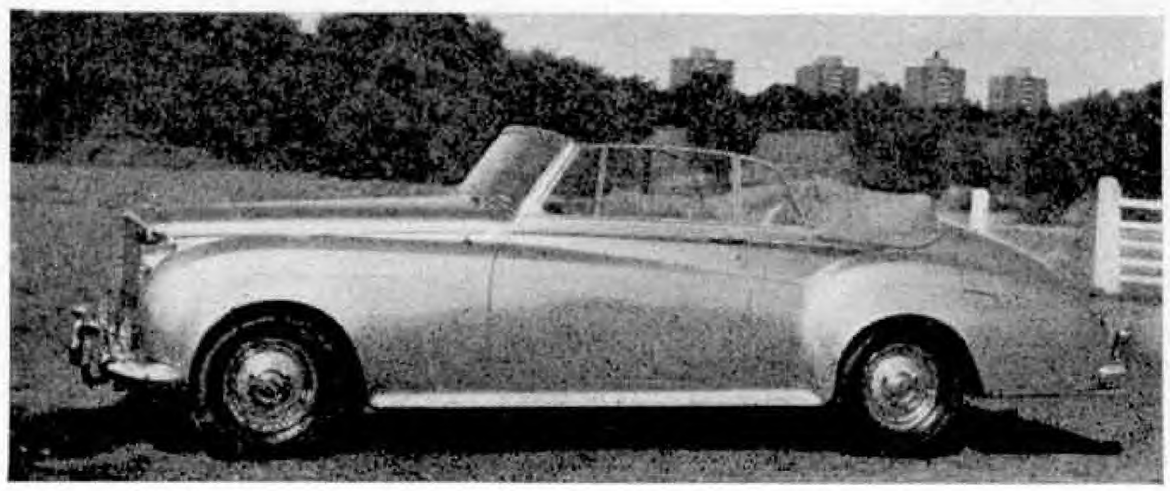
During the 1920's "W.O." produced a range of outstanding cars, each of which became famous in its own way. Among them were the 6½ litre six, the massive 8 litre—capable of over 100 m.p.h. with a town-carriage body—and the immortal 4½ litre cars which did so well in international racing in the hands of such fine drivers as Sir Henry Birkin, Woolf Barnato and Jack Dunfee. The achievement of "Old No. 7" which, although badly battered in a multiple collision, went on to win the 1927 Le Mans 24-Hour Race, is one of the great stories of motor sport.

In spite of its magnificent record in competition, the Bentley Company was never able to put itself on a sound financial footing, and in 1931 Rolls-Royce, Ltd., took over. The marriage proved highly satisfactory and an immediate attempt was made to blend the inherent silence of the dignified R-R with the great-hearted, if somewhat noisier characteristics of the high-performance Bentley.

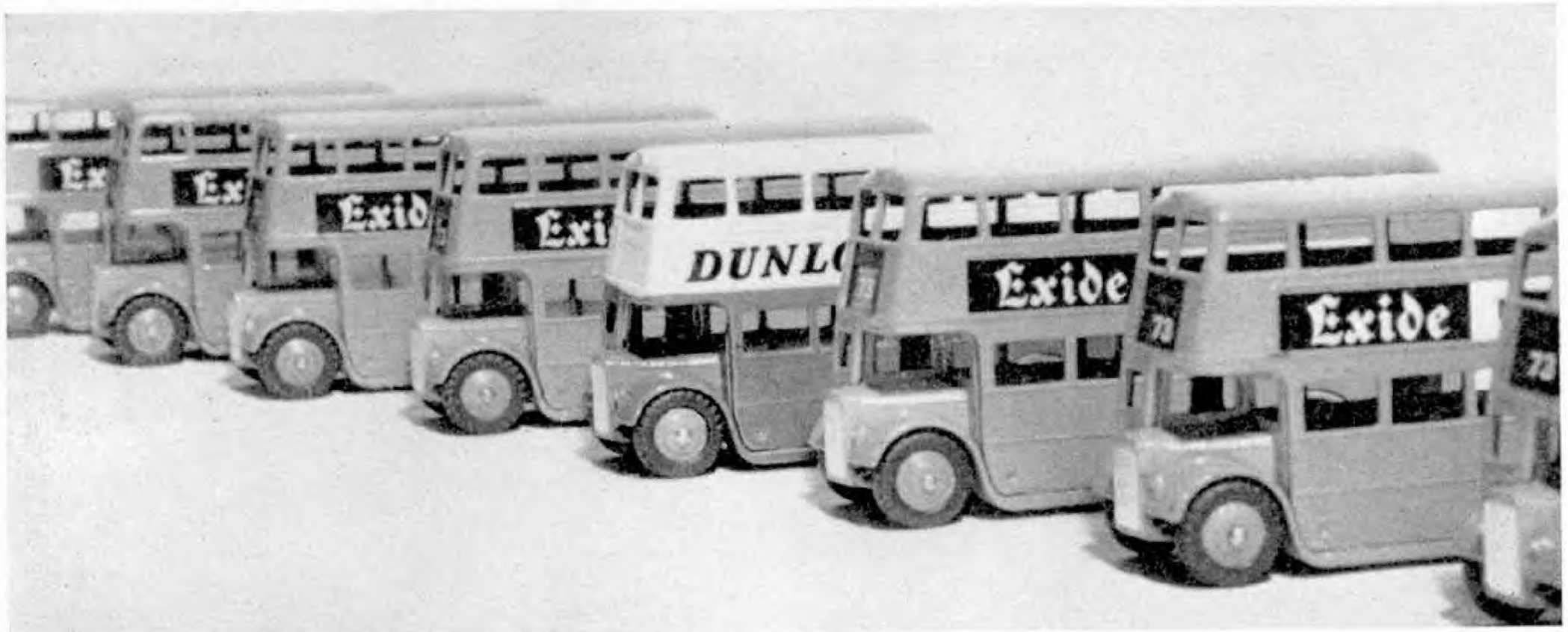
This resulted in an entirely new 3½ litre model, known in the catalogue as "the silent sports car". Its power unit was based on a tuned-up version of the Rolls-Royce 25/30 h.p. engine. Again Bentleys appeared in races, and this time they were driven by E. R. Hall, a private owner, whose special-body cars came second in the 1934, 1935 and 1936 T.T.'s, as well as winning laurels at Shelsley Walsh and elsewhere.

In 1936, the 3½ litre Bentley was replaced by the 4¼ litre model which was offered with a wide variety of coachwork by such well-known craftsmen as Mulliners, Park Ward and James Young. This model continued with minor modifications until the war when Rolls-Royce switched to the production of aircraft and diesel engines.

In 1947, a new Bentley was born—the 4¼ litre Mark VI model with F-head engine, using overhead inlet and side exhaust valves. A few years later an alternative model was introduced for high-speed touring on international motorways. Known as the Continental Bentley, (Cont. on page 385)



The Bentley Drophead S2 Coupé has the same 6,230 c.c. 8-cylinder aluminium engine, and the same chassis specification, as the Bentley S2 Four-Door Saloon, and certain similar body parts. Power operation of the hood and the main windows on the doors is optional. Picture by courtesy of Rolls-Royce, Ltd.



This Month's Topic . . .

DEPTH OF FIELD

THE diaphragm, or "stop", of a lens controls the amount of light passing through. It also controls the depth of field.

Depth of field, often wrongly called "depth of focus", is really a zone of sharpness. When a lens is focused sharply on an object, other subjects closer or farther away are not as sharp on the film. Their lack of sharpness—or blurring—increases gradually with distance and there is a zone both behind and in front of the focused object where the blurring is so small that we do not notice it. This zone is the depth of field. The smaller the aperture, that is, the *bigger* the *f* number, the greater the depth of field. Conversely, the larger the aperture the smaller the depth of field. For instance, if a lens of 3-inch focal length is focused on an object 20 feet away, then at *f* 5.6 everything between 16 feet and 26 feet will appear sharp. At *f* 16 the zone widens to between 12 feet and 55 feet.

This month's pictures show a row of Dinky Toys buses. In each picture the camera was sharply focused on the "odd man out" bus in the centre of the row. At the first attempt—bottom picture—a wide aperture was used (*f* 4 at 1/50 sec.) and you will see that most of the buses on both sides of the focused one are blurred. On stopping down to a small aperture (*f* 16), depth of field increases and all the buses appear sharp. (At this aperture, the shutter was opened for 1/3 sec. to give the same exposure as the first.)

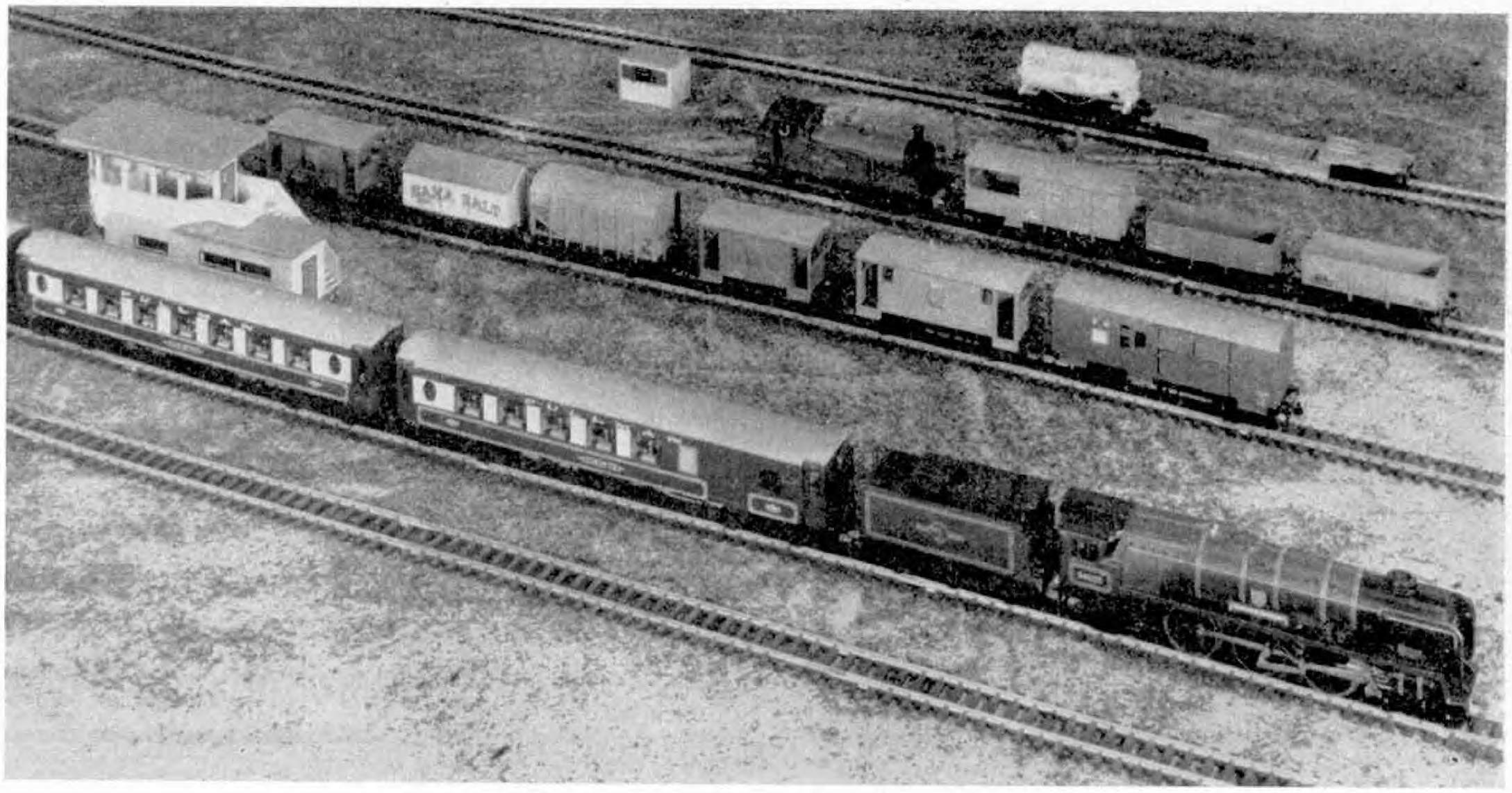
BY H. G. FORSYTHE

To use depth of field to the best advantage, remember that a small aperture should be used when we photograph a scene in which we want to show both near and far detail as sharply as possible—a landscape, for example, or a threequarter view of a train. On the other hand, limit depth of field when taking a portrait near an ugly or distracting background, such as a wall or fence. Here, by using a large aperture and focusing carefully on the subject, it is possible to blur the background and make your main subject stand out clearly.

Lens apertures of simple cameras are small (*f* 8 or *f* 11) and do not pass much light, but their depth of field is great. This explains why such cameras are most suitable for use in bright light and why they give sharp pictures over a very wide range of distances without much need of focusing.

Last month, we discussed how shutter speed and aperture work together to give the total exposure. Modern films, especially medium speed ones, have a wide latitude. This means that reasonable pictures are possible over a wide range of exposures. For very best results though, exposure must be right. Exposure tables are given in the instruction leaflet enclosed with most films, (*Cont. on page 385*)





AN ELEGANT PULLMAN TRAIN, AND MORE PARIS PRODUCTS

The West Country Locomotive "Barnstaple" and two of the Pullman Cars included in the new Hornby-Dublo Pullman Train Set for Two-Rail layouts are shown in the picture above.

THIS month, there is really splendid news for Hornby-Dublo enthusiasts. The Hornby-Dublo range in Two-Rail now includes a fine Pullman Train Set, and at the same time additions have been made to the attractive range of Paris-built Hornby-Dublo products now available, in restricted quantities, in Great Britain. Further, two Train Sets, No. 2014 *The Talisman* and 2023 *The Caledonian*, have appeared with the latest Hornby-Dublo Corridor Coaches of B.R. Standard type. These vehicles replace the D22 Corridor Stock originally included.

I will say more about these Sets later, because first of all I am sure you wish to hear about the Pullman Train Set. Not only is this something entirely new in Hornby-Dublo but the Locomotive concerned is a new one, too—a Southern 4–6–2 of the rebuilt West Country class.

Pullman cars have long been a feature of the Southern scene and in introducing our first S.R. main line train set into Hornby-Dublo it was felt appropriate that a Pullman train should be represented.

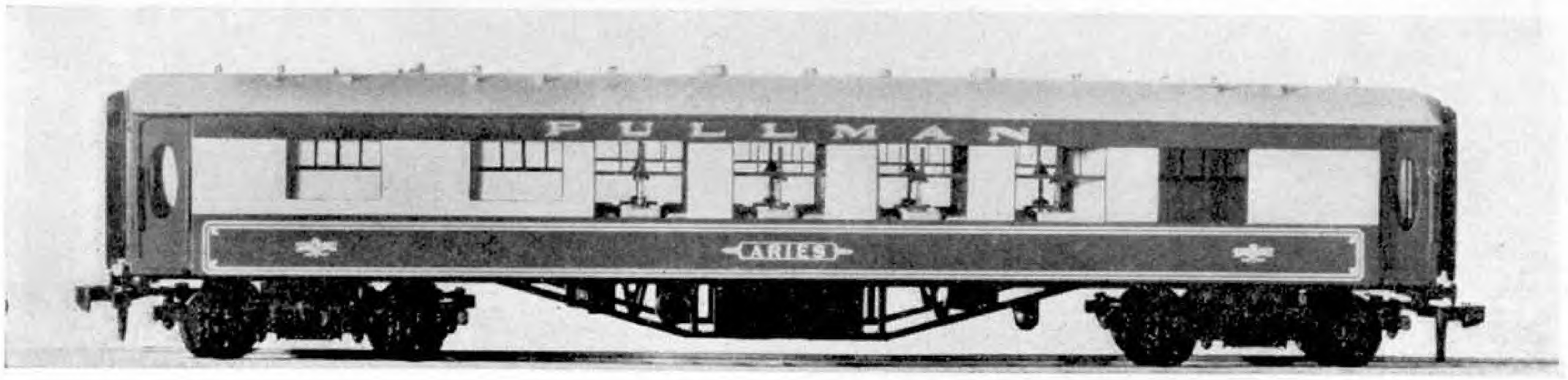
The Set consists of the 4–6–2 Locomotive No. 34005 *Barnstaple* and Tender, and there is one each of the three Hornby-Dublo Pullman Cars that became available, separately, a little while ago.

I referred to the Pullmans at some length in our talk last March. They are respectively a First-Class Car, a Second-Class Car and a Brake-Second. These fine Cars have moulded bodywork and bases and are complete with plenty of detail.

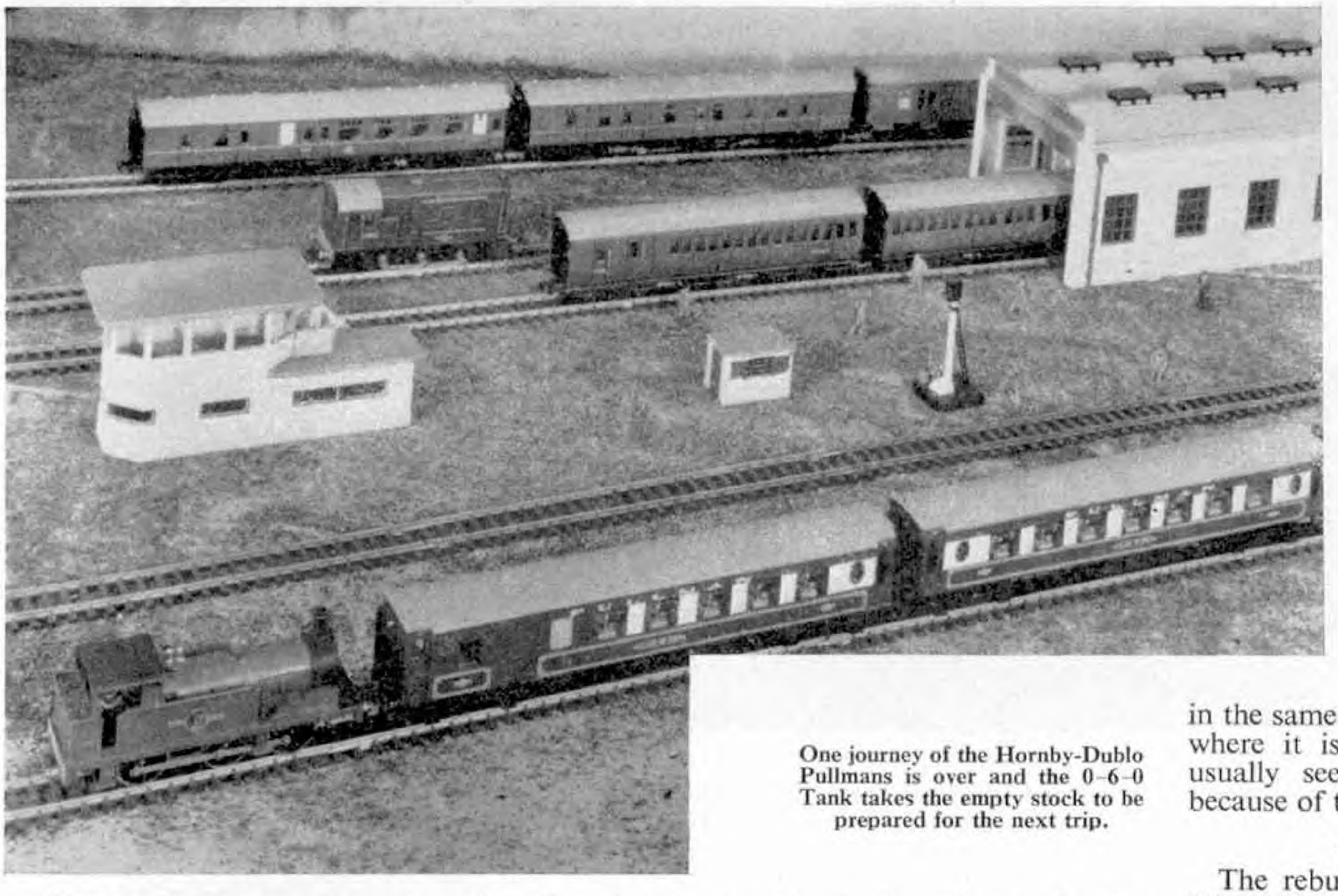
The First-Class Car, bearing the name *Aries*, represents a Pullman with a kitchen section at one end, and you can see this car in the picture at the foot of this page. The Second-Class Pullman Car has no name, but is simply *Car No. 74*, while the designation *Car No. 79* distinguishes the Brake-Second Pullman that completes the train. In addition to the passenger section, this Car incorporates the brake-end in which the guard and luggage travel.

HORNBY RAILWAY COMPANY

By the Secretary



Broadside view of first-class Pullman Car "Aries".



One journey of the Hornby-Dublo Pullmans is over and the 0–6–0 Tank takes the empty stock to be prepared for the next trip.

These vehicles reproduce extremely well the traditional Pullman outline, and carry the familiar umber and cream livery with lining, coat-of-arms, and title panels on the lower bodysides. Like other recent introductions in Hornby-Dublo coaching stock they have internal fittings, and the manner in which this is carried out suggests the special character of Pullman accommodation.

The usual circuit of Hornby-Dublo Two-Rail track is included in the Set, consisting of eleven Curved Rails, one Curved Terminal Rail and two Straight Rails. The Curved Terminal Rail incorporates a suppressor, in line with recent Hornby-Dublo practice, this being in addition to the suppressor gear already mounted on the engine motor to counter radio and television interference.

Train Name Labels

There is one small feature of this Train Set that will, I know, delight all those who buy it. It is the inclusion of a locomotive headboard of correct Southern outline with a self-adhesive label bearing the title *Bournemouth Belle*. The lettering and edging of the label are beautifully carried out in aluminium colour, the background of the board being Southern green. In addition, there are attractive *Bournemouth Belle* labels suitable for fitting to the Pullman Cars.

So much for the Train Set in general. Now, what about the engine? I am sure all Hornby-Dublo owners, particularly those who are Southern supporters, will give it an enthusiastic welcome. In the preparation of its design the ready and whole-hearted co-operation of the Southern Region authorities is appreciatively acknowledged.

Imposing Locomotive

In their rebuilt form, the West Country engines have a more businesslike appearance than that presented by those still retaining the original style of "air-smoothed" external casing characteristic of the Bulleid design. Even when reduced to 1/76th of the size of the real engine, as it is in Hornby-Dublo, a rebuilt West Country is an imposing locomotive and I need hardly add that the characteristics of the prototype are meticulously reproduced in the Hornby-Dublo version.

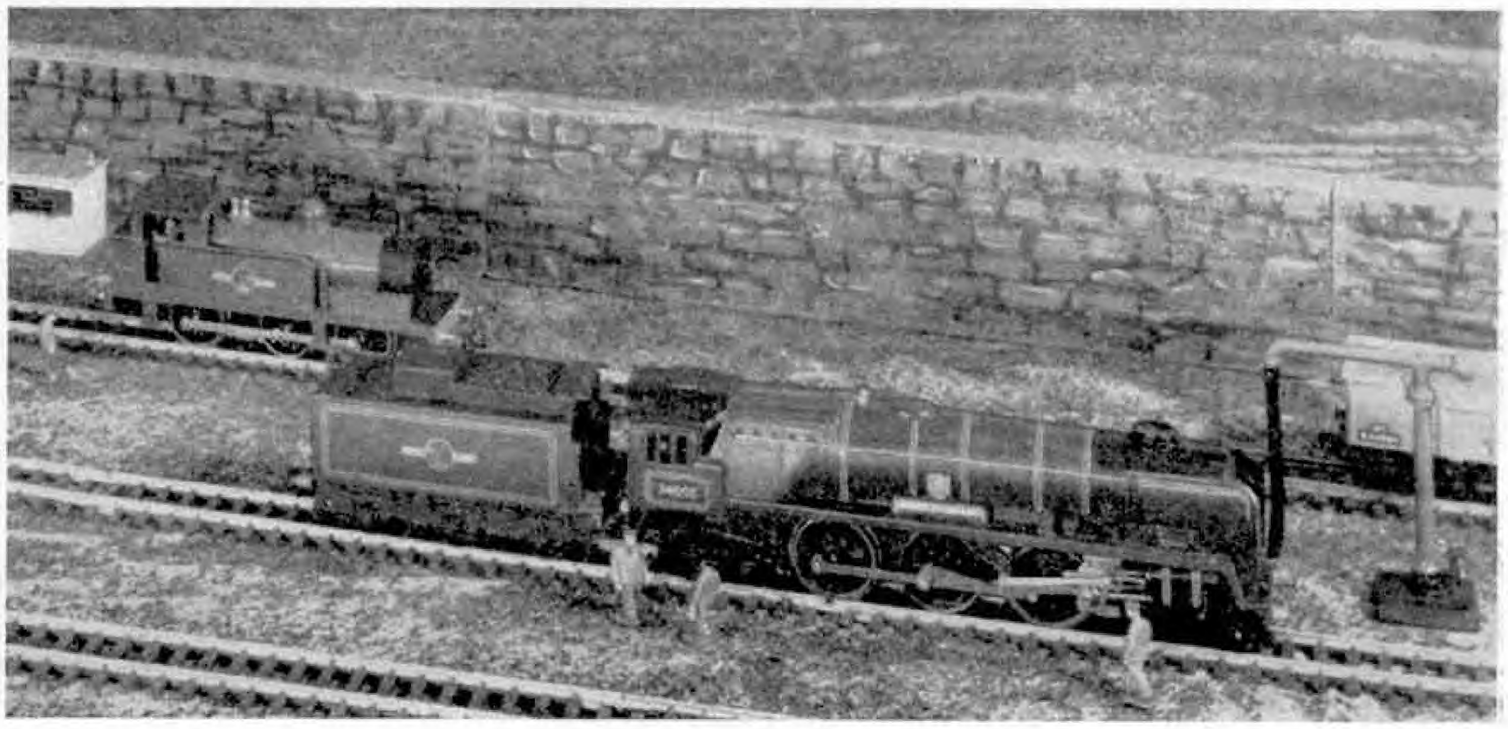
It will be welcome news that the highly-efficient Ring Field Motor is used in this new locomotive, so that a high standard of performance on the track can be expected. The design of the locomotive body or housing, and of the motor frame casting which forms the backbone of the engine, has been carefully carried out in order to provide adequate adhesion weight. The cylinders are mounted on the motor frame assembly, not on the housing of the engine, so that no disturbance of them or the outside motion is necessary when the housing has to be removed for maintenance operations.

Incidentally, as illustrations here make clear, the type of slide bar and cross-head characteristic of the original design has been modelled remarkably well. The layout of the various rods and levers of the motion itself has also been arranged in the same manner as on the real engine, where it is slightly different from that usually seen on locomotives generally because of the design of the piston valves.

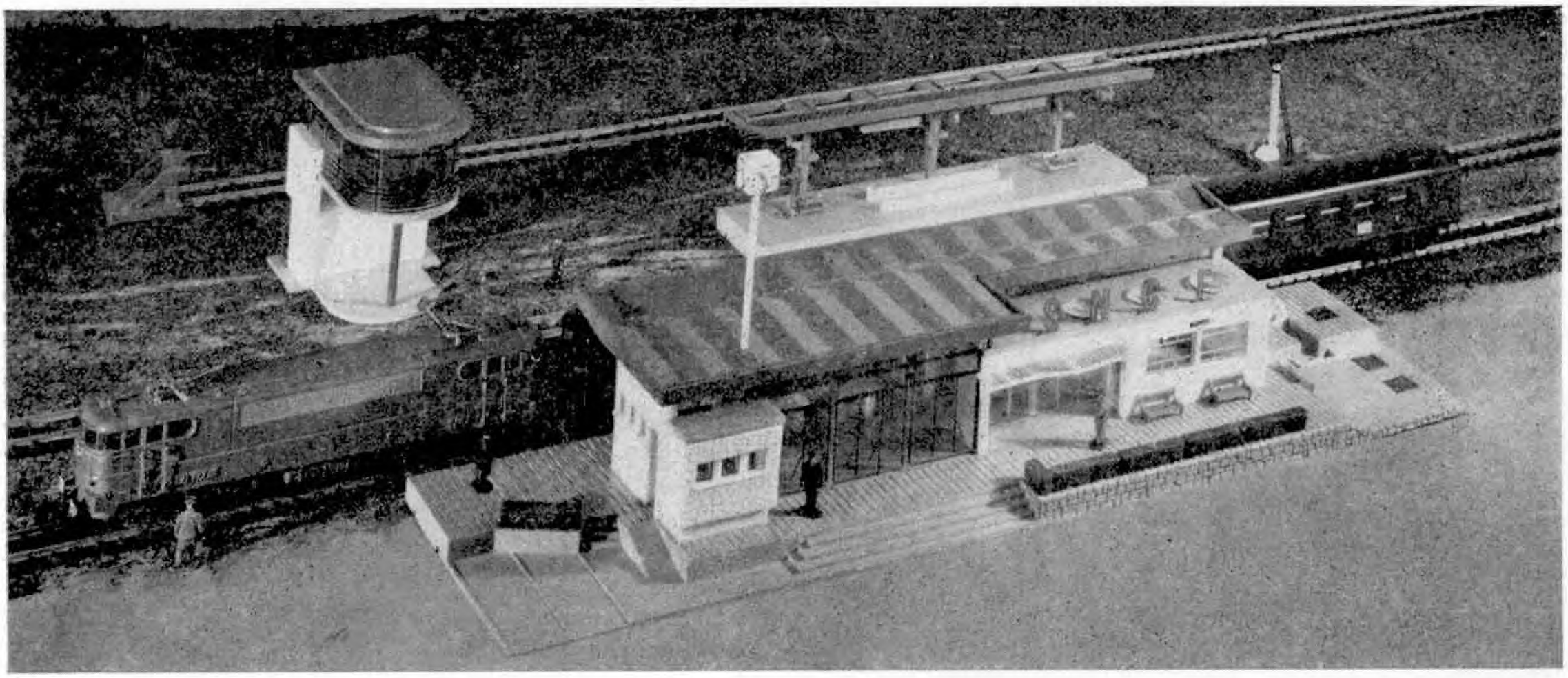
Springs for Bogies

The rebuilt West Countries retain the "disc-with-holes" wheel centres that formed a striking feature of the original design, and these, of what is known as "Bulleid-Firth-Brown" type, are beautifully reproduced on our miniature *Barnstaple*. The trailing truck, which has outside frames, incorporates a great deal of the axlebox and spring detail found on the real engine. A new feature in the suspension of this truck, and of the leading bogie, that will be welcomed by all Hornby-Dublo enginemen is the provision of spring control. The springing is light, but effective, and while permitting the bogie and pony truck to accommodate themselves to the levels of the track does not in any way impair the curving properties of the engine.

Starting from the front of the model, we find that the rather bulbous smoke-box door has just the same "face" as that on the real locomotive, and there is the same long smoke-box, wide chimney and smoke deflectors that give the big engine much of



"She's all right, mate", says the Hornby-Dublo Driver to the Examiner as they stand alongside the cab of West Country Locomotive "Barnstaple". The same opinion will no doubt be held by those Hornby-Dublo owners who obtain the Train Set which includes this fine new Locomotive.



French electric BB 16009 draws its train into the station assembled from the new Kit described in this article. The view also includes a French-type Island Platform and Signal Cabin.

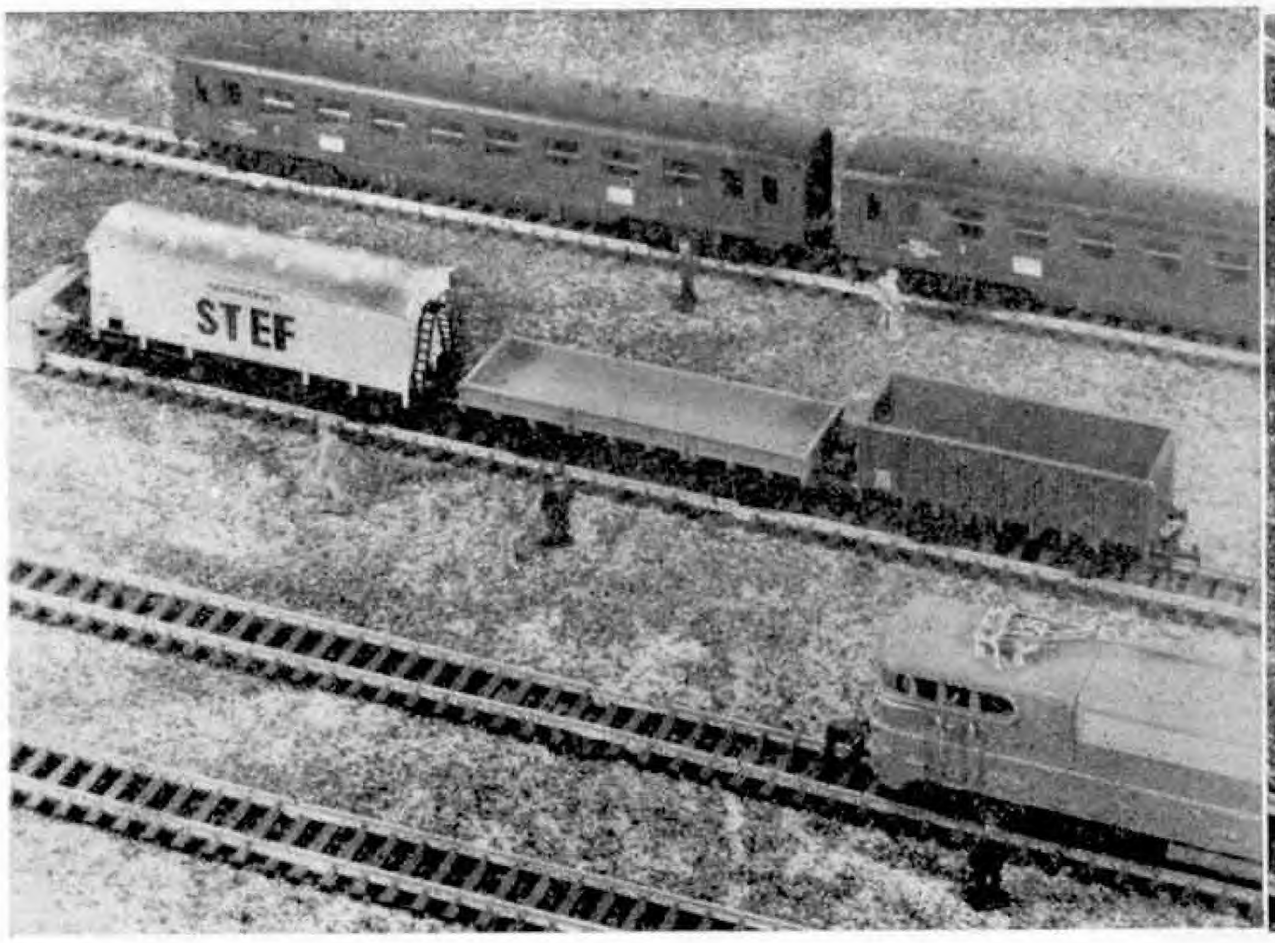
its bold appearance. The main frame extensions in front of the smoke-box are correctly featured as well as the steeply-rising contours of the foot framing, which, as in most B.R. Standard locomotive designs, is carried right over the tops of the driving wheels. This results in the cab looking perched-up high above the trailing truck. The cab front has the cut-away profile adopted to improve the look-out for the enginemen, while ahead of the cab is the tapering Belpaire-type wide fire-box and combustion chamber.

Details of the boiler itself, apart from the chimney already mentioned, have had particular attention, the fittings known as the clack valves, through which the real boiler is fed from the injectors, being mounted together correctly on the right-hand side, while the safety valves are located, somewhat unusually for other than W.R. engines, near the rear of the boiler barrel, not on top of the fire-box. The dummy whistle, too, is shown, in a horizontal position to the right of, and just ahead of, the dome. Handrails, alongside the boiler and along the top of the smoke deflectors, reversing shaft, lubricators and other items are modelled and on the framing above the centre driving wheels is placed the striking name-plate with the coat-of-arms of Barnstaple reproduced in colour, as on the real engine.

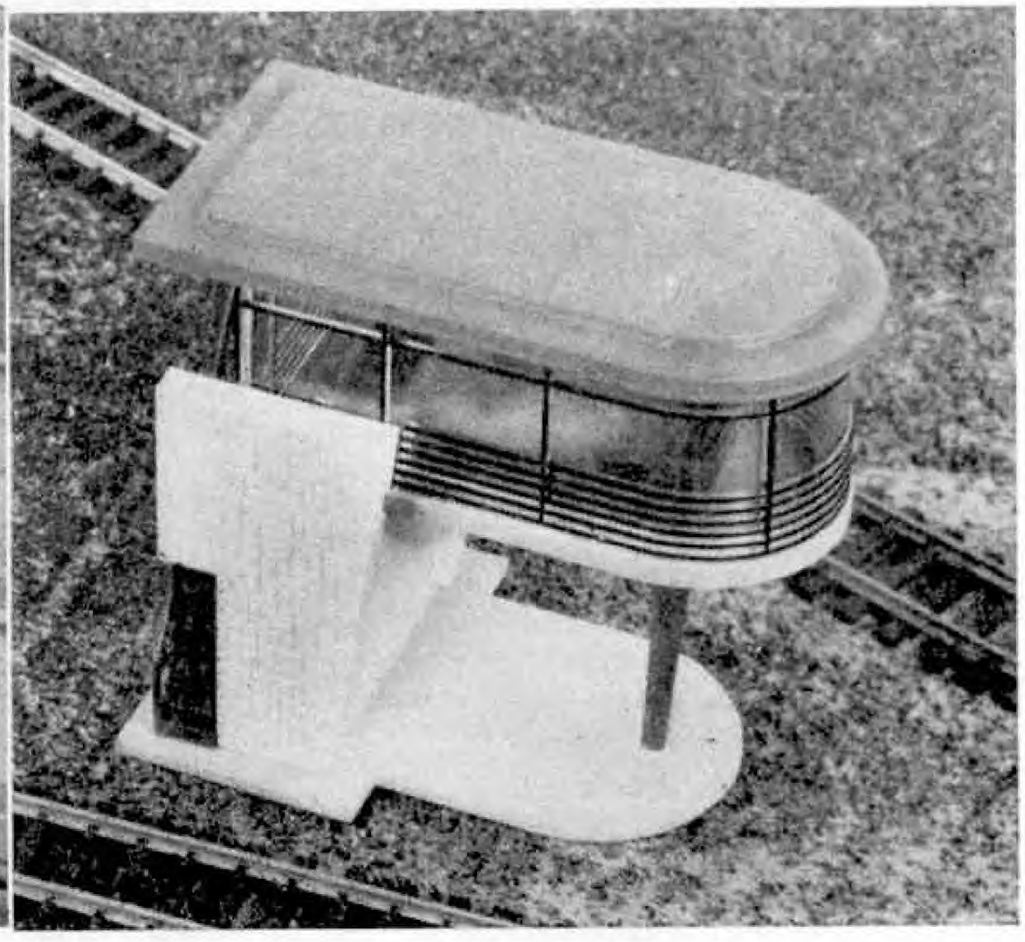
Well-detailed Tender

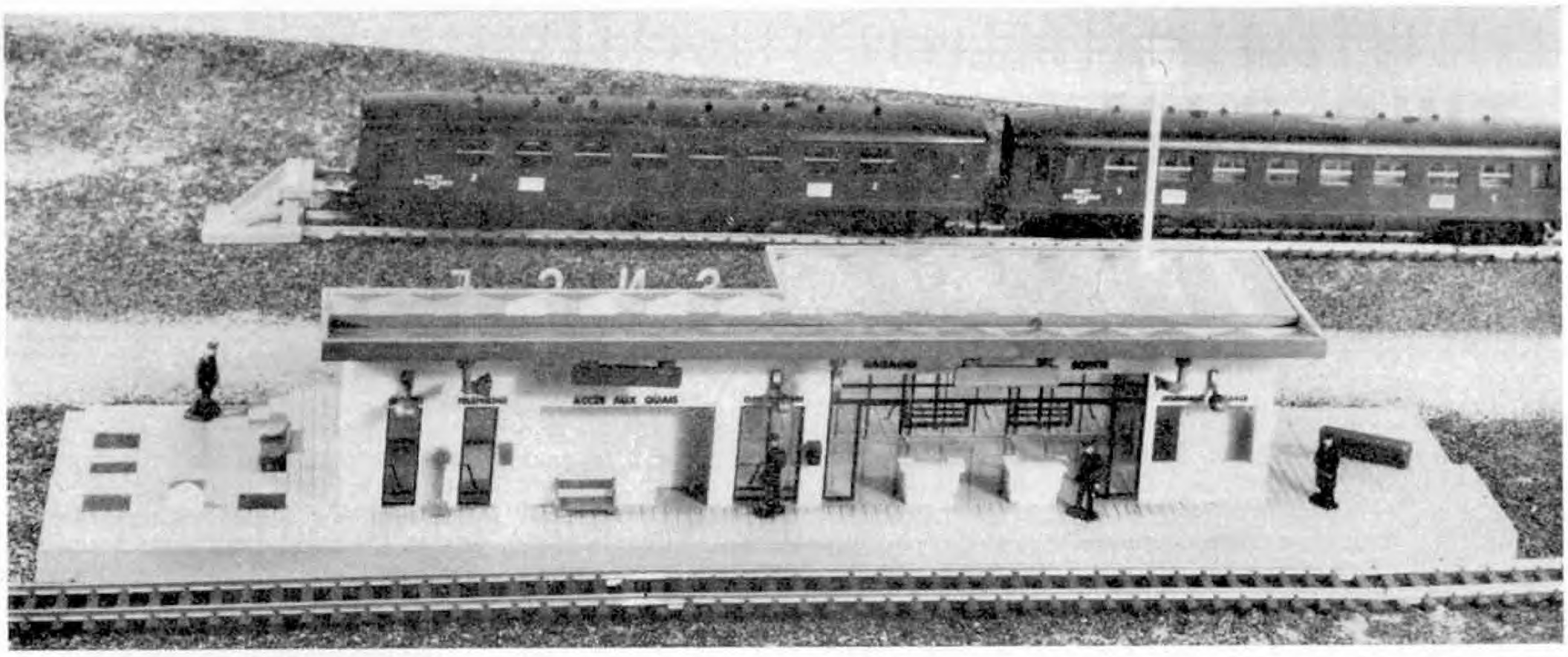
The Tender is of the latest form for this class of engine and is a worthy companion to such a Locomotive. Its die-cast side frames incorporate in a pleasing manner the axleboxes and spring details. The body, or rather the tank and upper section generally, is a plastic moulding. The tidily-filled bunker or coal space is correctly set-in from the outer edges of the tank, the tender front having the extended weatherboard or spectacle plate found on the real thing. Front-end fittings are represented effectively, such as the coal doors, shovelling plate and hand brake column. At the rear end the ladder for ready access to the tank top is included. On top of the tank is the casing that houses the vacuum tanks, and the water filler and other tank top items are effectively modelled.

The attractive character of the Signal Cabin assembled from the standard Kit is well shown in this illustration.



The French-type Refrigerator Van, Low-Sided Wagon and Open Wagon referred to in these notes are shown here. The BB Locomotive is prominent in the foreground.





The French-type Station viewed from the railway. The design and general detail of this attractive accessory are very pleasing.

The "Light Pacifics", to use the name often applied to the West Country class, were designed as a smaller edition of the Merchant Navy 4–6–2s. They have a much wider route availability than the bigger engines and can, in fact, run almost anywhere in the Southern Region. The class was specially designed with a view to the traffic and engineering requirements west of Exeter and so it was decided to give the engines names of a West Country character, hence the popular name of the class.

As the numbers of the class increased, the light 4–6–2s were drafted to other areas of the Southern Region than the West Country. Before electrification of Eastern Section main lines, they appeared on such notable trains as the *Golden Arrow* and other important services.

New Items From France

As the *Golden Arrow* suggests a trip to France, it is easy for us to pass into the French atmosphere created in miniature by the Paris-made Hornby-Dublo components in the picture at the top of page 368. The splendid S.N.C.F. BB 16000 electric type locomotive and coaches we have already encountered in our talk last month. These have now been followed up by several items of goods rolling stock, a Signal Cabin and an Island Platform and, most attractive of all, perhaps, a really modern and complete Station of typically French character.

The last-named, like the Signal Cabin, comes in the form of a Kit that it is a pleasure to assemble, but you *must* follow the order and method laid down in the clearly-presented instruction leaflet packed with it. It is essential first of all to lay out all the sections in their numerical order. This makes them easy to identify, and the stages in the process of assembly follow one another naturally once the function and position of the different pieces has been grasped.

In the picture at the top of page 368 the Station as well as the Island Platform and Signal Cabin are included. The Station itself, when built up, has a pleasing "open" appearance which is bound to appeal to many miniature railway owners. The Station is necessarily built up on a platform, but the latter is not simply a plain base, nor is it raised much above rail level, unlike that of a British station. The platform is arranged so that there is an attractive approach to it on the road side, and matters do not end with the provision of a simple stairway or incline. There is a series of steps leading to the main part of the building, and, toward one end, a further series of steps rising from a small area forming a kind of sunken garden. Here, you cannot fail to notice the neat grass plots that are represented, in addition to the well-trimmed hedges that finish off the raised section, almost like a small promenade or terrace, facing the road.

The booking office and the entrance hall form part of the main building and there is, of course, an exit. In all cases the doors represented are of the frameless glass type, an architectural feature which is well-known nowadays. Characteristic skylights form part of the roof detail and a pleasing feature is the inclusion of the lettering *S.N.C.F.* arranged to form a sign standing prominently over the entrance.

On the railway side of the platform the building displays all the usual features and there are numerous dummy accessory items such as a platform weighing machine, nameboards, lighting fittings, and the characteristic speakers of the public address system now common at many transport centres. A particularly clever arrangement is the inclusion of a small alcove which gives the appearance of leading to a stairway and subway under the tracks. Prominent above the roof is a four-faced dummy clock erected on a slender standard.

The Island Platform is simpler in character, but its general style is in keeping with that of the other accessories. It is a neat and well-designed item consisting of a platform, with an attractive awning supported on three columns. Nameboards and fittings similar to those found on the main station are included, there being a dummy subway entrance, and there are two platform seats. The Island Platform is sold in built-up form, not as a Kit. It can be used on its own, or several can be used together.

The Signal Cabin is a striking structure, the control room where the signalman works being raised well above track level. Making up the Kit to form the Signal Cabin is a pleasant exercise, but here again it is important to follow the instructions. It is best to assemble the Signal Cabin upside down, so that one begins with the roof and finishes with the floor. The walls of the Cabin are completely glazed so that the signalman has an uninterrupted view of trains passing in any direction. The dummy control panel and a small desk for his use are included and a well-modelled stairway enables him to reach his working quarters. The outer end of the structure, which is rounded, is supported on a column, not on a built-up brickwork structure. With its flat projecting roof the Cabin has an extremely modern appearance, as is clear from the separate illustration of this attractive accessory.

French Rolling Stock

Passing now to the rolling stock, there is a long-wheelbase Refrigerator Van of typical Continental aspect. The moulded bodywork is remarkably complete in detail, planking, door-fittings and small items being extremely well modelled. At each end are included the ladders and a small landing, for access to the ice chambers in the real thing, and in addition to these the cool condition of the cargo is assisted by the ventilators that are extremely well modelled on the roof. Lettering and markings are clearly delineated and are carried out in neat manner.

The Low-Sided Wagon also is of long-wheelbase type and is equally attractive

(*Continued on page 385*)

TWO-RAIL SCHEMES

FIRST IN A NEW SERIES

BY "THE LINESMAN"

MOST Hornby-Dublo miniature railway layouts are developed from a standard Train Set, and one of the first stages of such development is that of lengthening the oval track by adding Straight Rails and Points to serve one or more sidings or loops. The layout shown on this page is designed to occupy a baseboard measuring 6 feet by 4 feet, and is a most useful one, providing, on a fairly simple track, sufficient scope for several interesting train movements.

Operating in turn

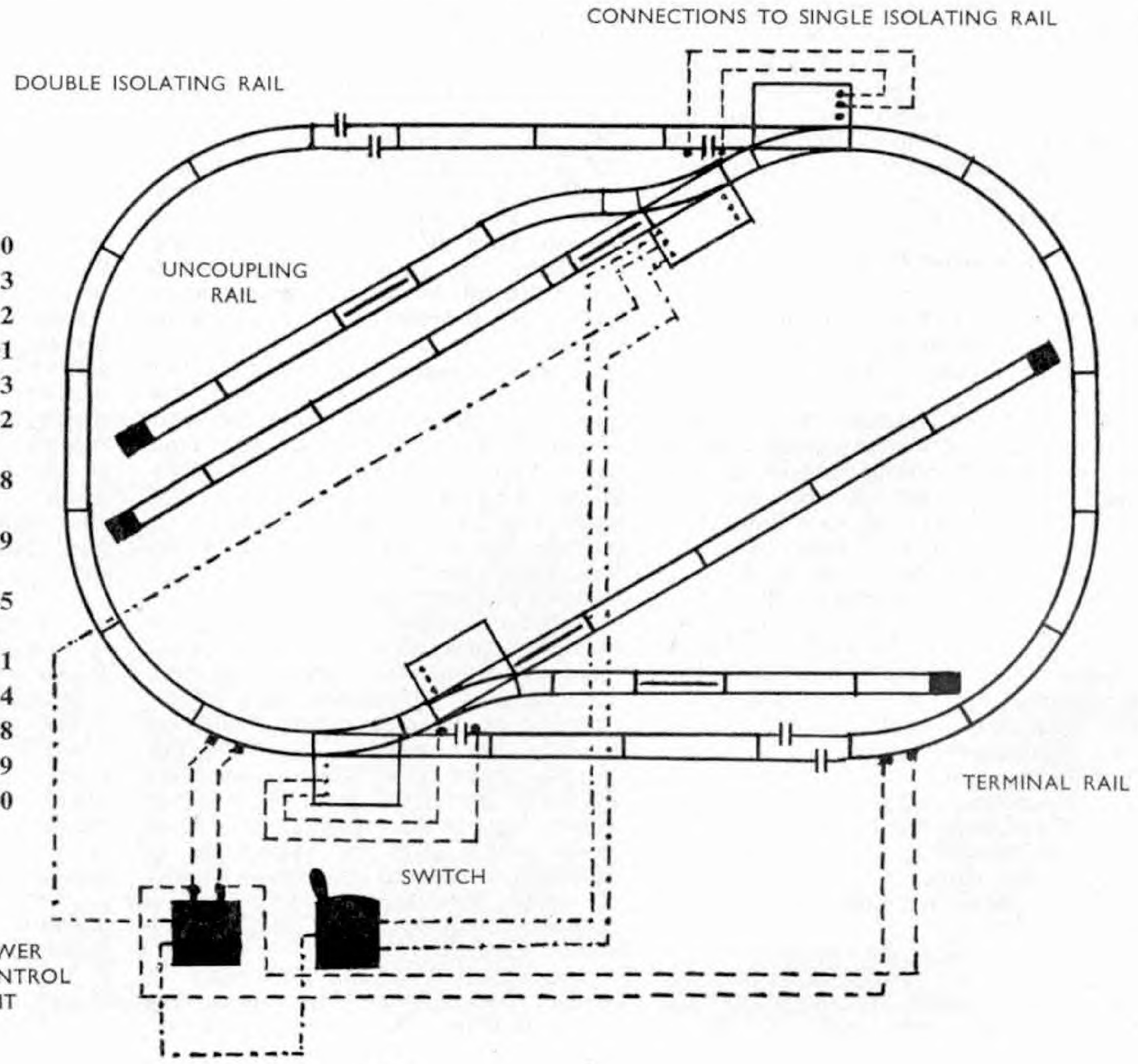
Two Locomotives can be accommodated on this layout, hauling a goods and a passenger train respectively, and each will operate in turn. In our picture on the opposite page two Tank Locomotives are used. One train stands in a siding while the other travels. Isolation of a train is accomplished by switching the Points blades against it, as, in the Two-Rail system, Points both Hand and Electrically-Operated are of the switch type, which means that current is fed only into the track for which the Points are set.

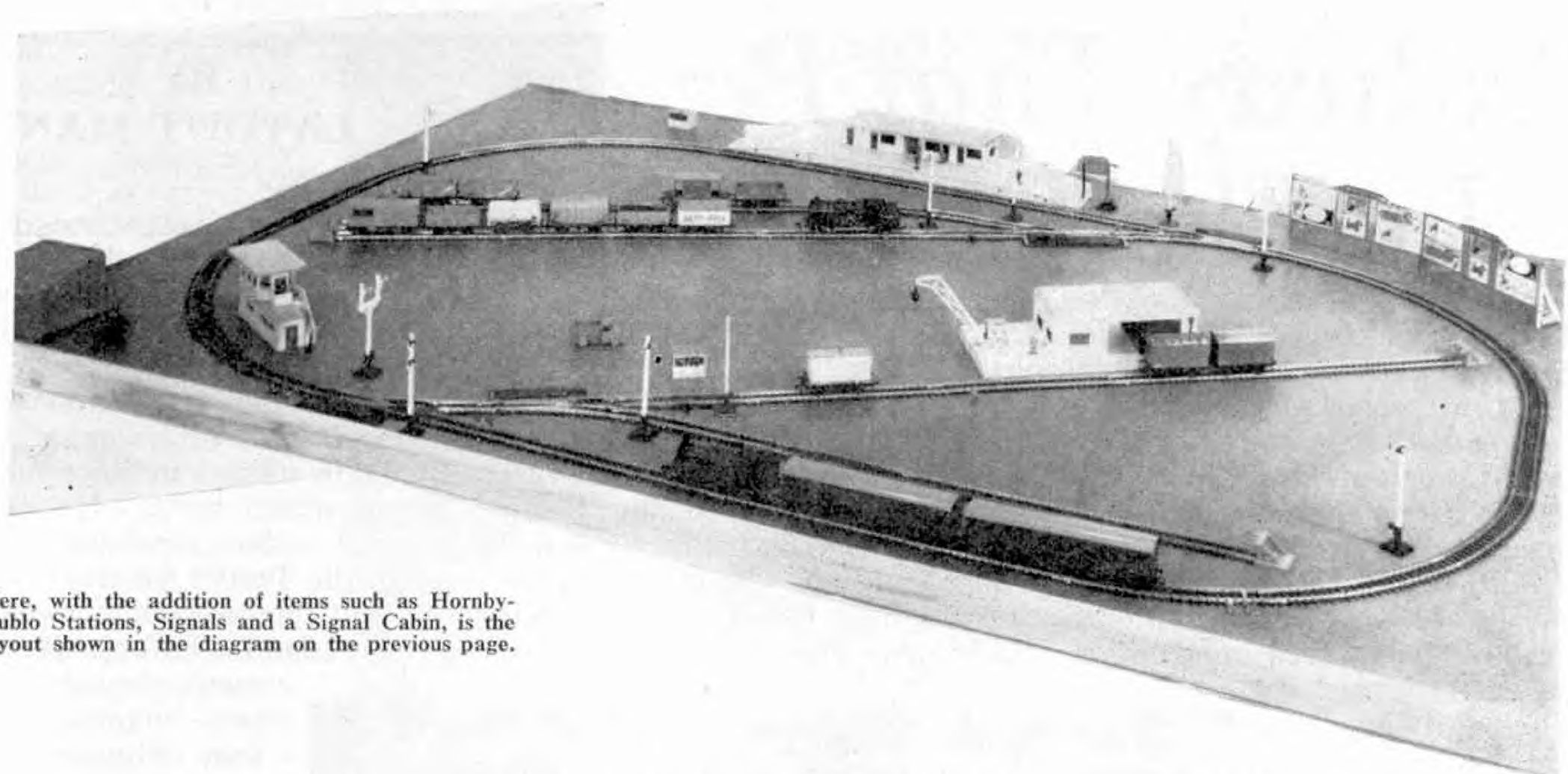
On the "main line" there are two isolating sections between the Single and Double Isolating Rails (see plan) in either of which a train can be held while a shunting movement in the sidings is carried out. For instance, a train travelling in a clockwise direction can be held between the Single and Double Isolating Rails on the lower track by switching the siding Points against it after bringing it to a standstill between the Isolating Rails. It is then possible for the other engine to draw a train out of the sidings and round the track, then back the vehicles into either of the upper sidings. Once it is inside, the main line Points are re-set, and the first train can either resume running or back into the siding vacated by the second train.

The provision of an Uncoupling Rail in each siding will allow Wagons or Coaches to be uncoupled and left stationary until required again. By to-and-fro movements out on to the main line, vehicles can be left in either of the two groups of sidings. This kind of operation is a simple representation of the sorting of wagons, or shunting, which takes place on real railways.

ITEMS REQUIRED

11 Curved Rails	2710
2 Curved Terminal Rails . .	2713
4 Curved Quarter Rails . .	2712
15 Straight Rails	2701
1 Straight One-Third Rail	2703
5 Straight Two-Third Rails	2702
2 Straight Two-Third Single Isolating Rails	2738
2 Straight Two-Third Double Isolating Rails . .	2739
4 Uncoupling Rails, Hand-Operated	2745
1 Right-Hand Point, Electrically-Operated . .	2731
1 Switch	1614
1 Right-Hand Switch Point	2728
2 Left-Hand Switch Points	2729
4 Buffer Stops	2450
1 Power Control Unit	





Here, with the addition of items such as Hornby-Dublo Stations, Signals and a Signal Cabin, is the layout shown in the diagram on the previous page.

Simple wiring

In order to keep the wiring simple, only one Electrically-Operated Point is shown, but further Points of this type may be used in place of any of the manually-operated kind, without difficulty, if the same Point wiring scheme is followed. The track wiring is exactly the same for Hand or Electrically-Operated Points.

In future diagrams, specimen wiring of Signals and Uncoupling Rails will be shown. The wiring of a large number of such electrical accessories is simple repetition, as once a Signal or a Point has been wired, the operator will have gained sufficient experience to tackle further work of this kind without difficulty.

The power supply and control of this particular layout is provided by a self-contained power control unit, which has a controlled D.C. output for running the trains and an additional A.C. output for working Electrically-Operated accessories. The dash and dot lines shown on the diagram represent wiring, which is quite easy to follow.

Look out for another, more elaborate, layout in next month's *M.M.*, which will show a larger layout allowing a greater variety of train operations.

SHIP WITH AN EXCITING HISTORY

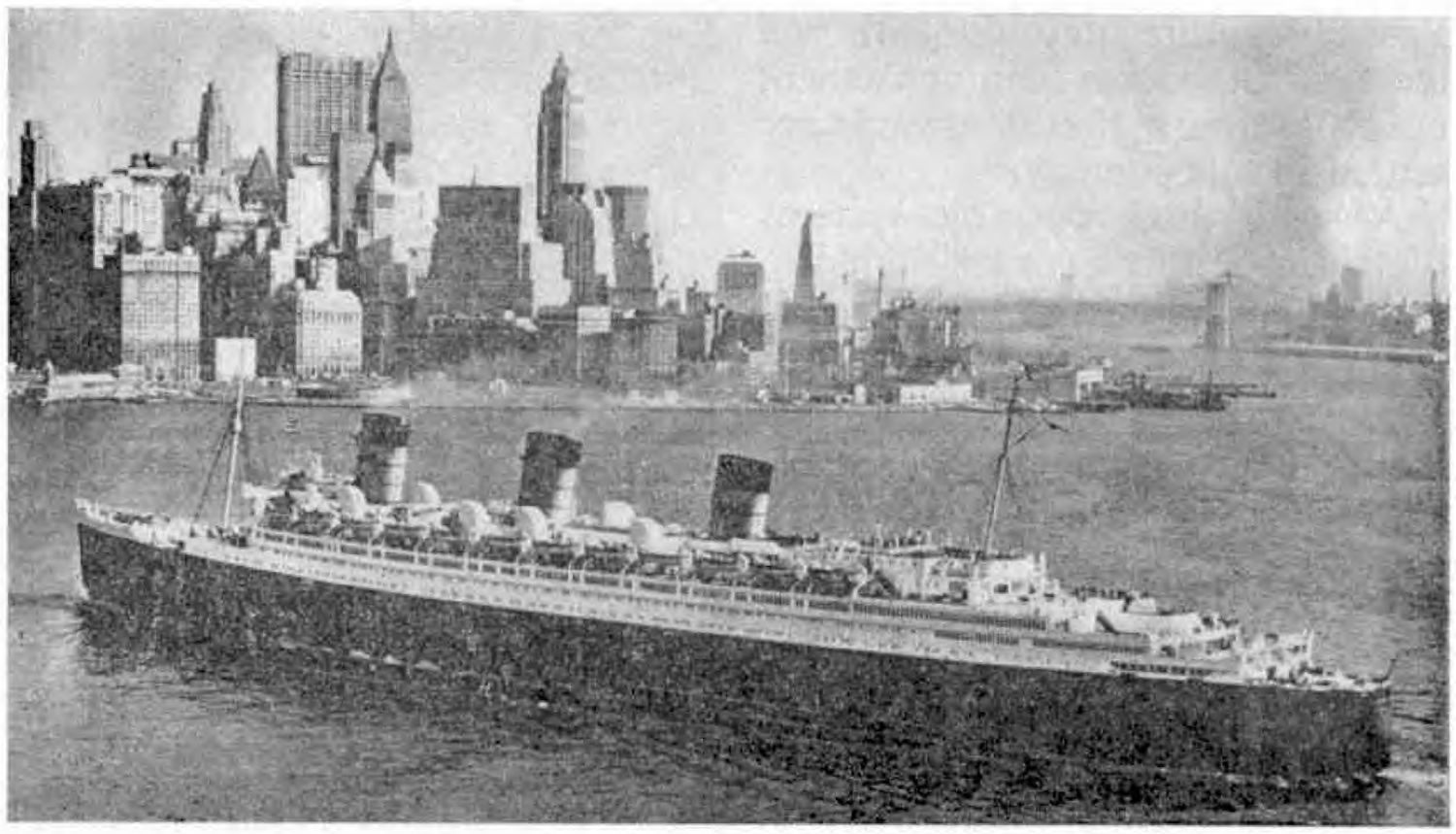
THE *Queen Mary* is neither the newest nor the largest of ocean-going liners, but everything in sight is dwarfed when she receives her annual overhaul at King George V Graving Dock, at Southampton, in preparation for another period of trans-atlantic service. The 70 ft. high first funnel is some gauge of the size of this giant ship which is 1,019 feet in length and carries 2,100 passengers and a crew of more than 1,000.

BY PATRICK TOWNSEND

The keel was laid at the yard of John Brown and Co. Ltd., of Clydebank, in August 1930 and she was launched on the Clyde in 1934 by the late Queen Mary. Her history has been both exciting and varied, for she has seen service as a passenger vessel and as a troopship, during the second world war. After her last trooping voyage in September 1946, the work of reconditioning was put in the hands of the builders, and she was re-fitted once again for luxury passenger service.

The gross tonnage of the vessel, 81,237, is exceeded by that of her sister ship, *Queen Elizabeth* (83,673 tons). She is driven by four sets of single reduction geared turbines of the Parsons type, each set operating as a complete and independent unit and driving its own screw. The four solid, four-bladed bronze propellers each weigh 35 tons. Her engines are designed to develop 180,000 s.h.p. and give a normal speed of 28½ knots, although during her fastest Atlantic crossing, in August 1938, she averaged 31.69 knots over the 2,938-mile course.

The immense size of the ship has enabled an unusually large amount of space to be devoted to public rooms. Apart from the usual (*Continued on page 385*)



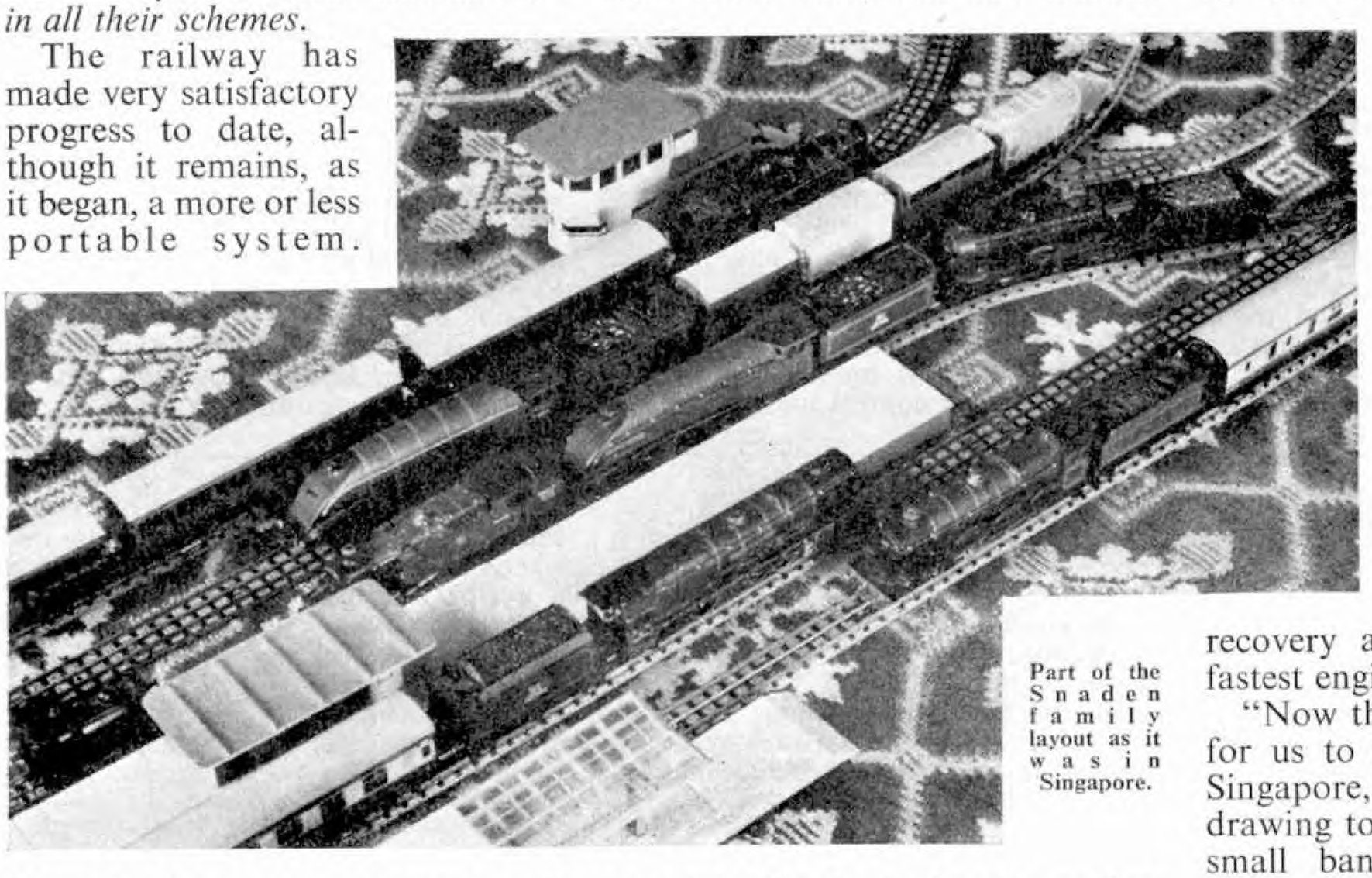
Another ocean voyage completed—the Queen Mary pictured against the New York skyline.

Railway That Began In The Far East

BY LAYOUT MAN

THE Hornby-Dublo Three-Rail layout of which parts are shown in our first two pictures this month has the distinction of having existed in places as widely separated as Singapore and Great Britain. This has been due to overseas service in the R.A.F. by Mr. I. D. Snaden, father of the two boys who nominally own the railway and a keen collaborator in all their schemes.

The railway has made very satisfactory progress to date, although it remains, as it began, a more or less portable system. Possibly future development will include installation on a permanent baseboard, now that its owners are settled in this country.



Part of the Snaden family layout as it was in Singapore.

As with most portable systems the form of the layout is liable to change, but the two illustrations used here—showing parts of it as it was in Singapore—are sufficient to indicate the realistic and railway-like manner in which the line has developed. For a detailed history of the line and its present equipment I cannot do better than quote the following passages from a recent letter from Mr. Snaden:

"Our collection started when we first saw in a shop window *Bristol Castle* metaphorically 'in the flesh' instead of in a catalogue," he writes. "The atmosphere was so right that the temptation to get it was more than my wife's resistance, and that was that; or so we thought. But it was not very long before the 0–6–2 Tank Train Set was put on show, and the boys saw it. Hot on their heels came Dad, who had wanted 'one just like that' when it was first introduced, at the time when he was supposed to be growing up and, what's more, who still remembered it with nostalgia.

"We were all delighted with our then latest purchase, but it was not long before it was realised that the rot had set in. This discovery was unfortunately made by the feminine side of the family, so that bribes became necessary to cover our requirements by way of distraction! So my wife and young daughter came to possess items of their mutual and singular interests. For example, *Duchess of Montrose* cost me a hair drier as well, but to my good fortune there was a demonstration sale, so that the combined costs were little more that would normally have been expended on a new 'off-the-shelf' *Duchess*!

"Before the acquisition of this engine *Duchess of Montrose*, one of my fellow officers in Singapore was due to return home. He had for disposal a *Sir Nigel Gresley* Set, minus the Tender for the Locomotive, but this was compensated for by an Island Platform (less one ramp), Signal Box and two manual double arm Signals, Level Crossing and Footbridge. Also included were some Points and track for an additional loop.

"The track was in very poor shape, though the Points cleaned up quite well, as did the brass-railed sections of track of later vintage than the original Set. *Sir Nigel Gresley* made a full recovery and is now by far the fastest engine in the stud.

"Now the time was approaching for us to make a departure from Singapore, as my term of service was drawing to an end. At this time, a small band of enthusiasts were getting together to form the Royal Air Force Seletar Model Railway Club, and with some of them we had great fun with a layout designed to show off the capabilities of *Sir Nigel Gresley*.

"Our collection of railway equipment now includes a 2–6–4 Tank as well as the 0–6–2 T, which has given us a few surprises for such an innocent-looking model! It hauls a good train of main line coaches, or a corresponding load of goods vehicles, at the pace of a full-speed express!

"All visitors who see the railway in operation are much impressed with the performance of it,

especially by the reliable roadholding of the Hornby-Dublo products, particularly since there is as yet no baseboard to help ensure perfection in track laying. The demonstrations have certainly influenced the decisions of those of our friends about to begin miniature layouts to invest in a like manner!"

Well, there it is; that's the way a railway grows at the hands of keen enthusiasts and how it can lead to the beginning of other systems. I wonder how many Hornby-Dublo layouts have been started in this way?

Our second railway, seen in the lower photograph on this page, is that operated by Mr. E. Desmond Spencer, M.A., and his son, of East Retford. You may recall a previous scene on this layout that appeared in these pages in December of last year.

Well-built baseboard

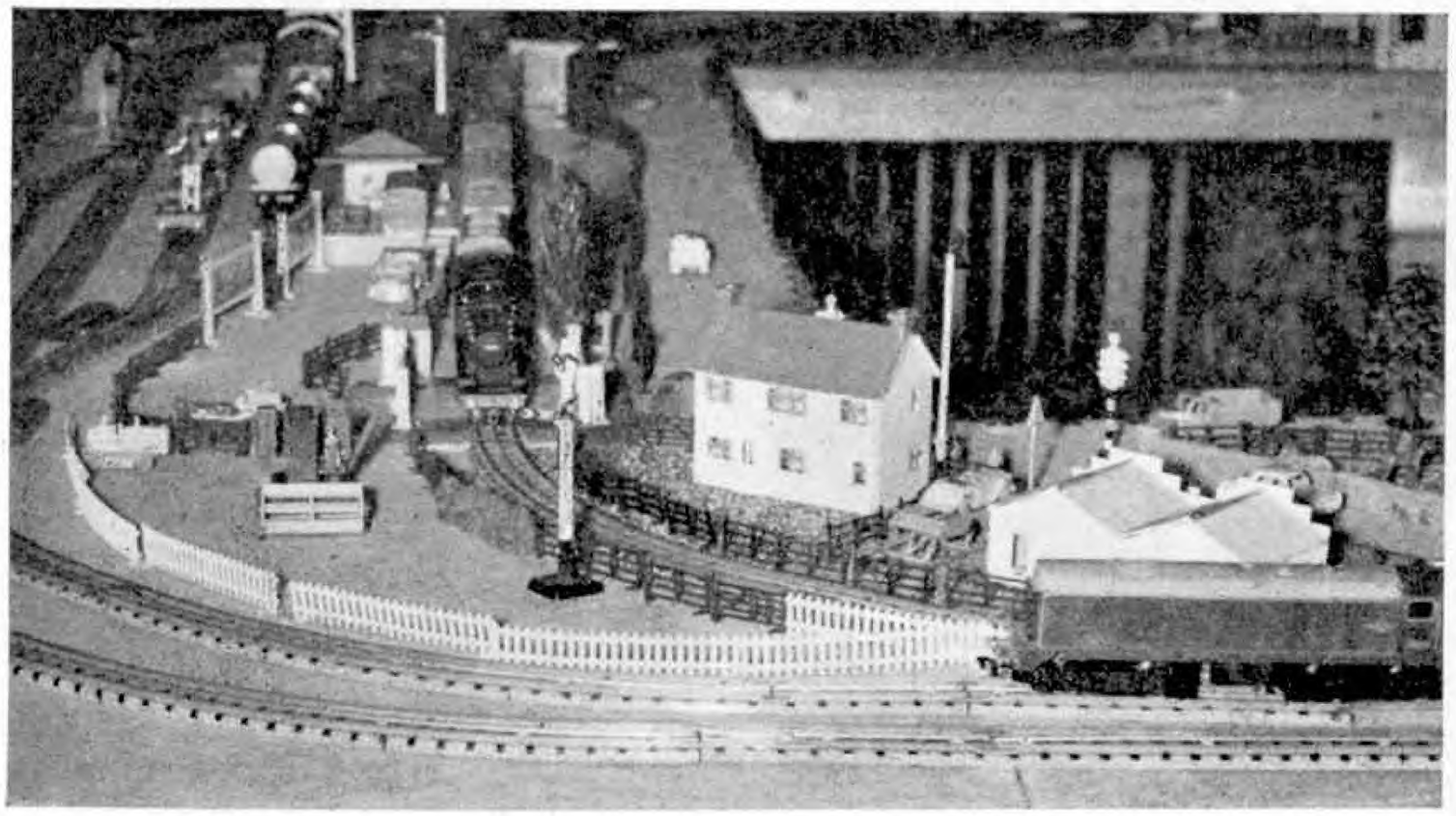
The line is laid on a neat and well-built baseboard and the whole system has a pleasing and "uncrowded" look about it. Not that tracks are few and accessories fewer; on the contrary, the photograph shows a section of double track main line with appropriate sidings, and a goods loop where a Hornby-Dublo 2–8–0 has just backed on to a train of freight vehicles standing alongside the goods platform.

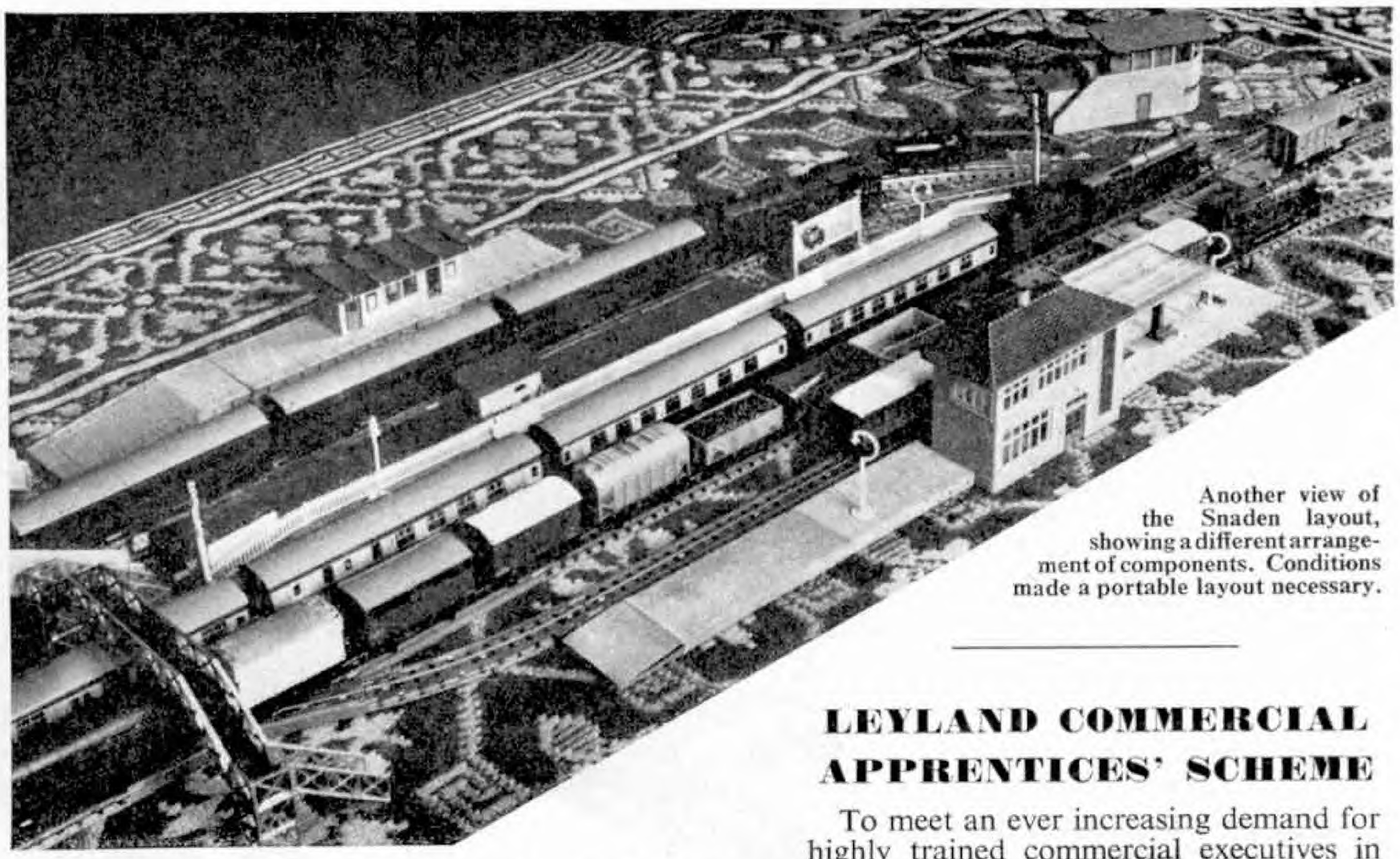
There is a good selection of rolling stock, both passenger and goods, as well as a Hornby-Dublo Breakdown Crane.

Roads and Buildings

The lineside boasts various buildings and there are roads, too. Dinky Toys Traffic Lights can be seen in the picture controlling the road junction just beyond the buildings on the inner side of the railway.

A corner on the Hornby-Dublo layout of Mr. E. Desmond Spencer, M.A., of East Retford, with a Bo-Bo Diesel broadside on to the camera.





Another view of the Snaden layout, showing a different arrangement of components. Conditions made a portable layout necessary.

LEYLAND COMMERCIAL APPRENTICES' SCHEME

To meet an ever increasing demand for highly trained commercial executives in its widening organisation, Leyland Motors Ltd. have introduced a Commercial Apprenticeship Scheme devised by Mr. S. Baybutt, director and chief accountant.

In keeping with Leyland's tradition of promoting from within the company, the new scheme will provide a wide and varied training for boys in the latest business and management techniques, to fit them for senior executive positions with Leyland Group companies at home and overseas.

Commercial apprentices will first go through an intensive training period in most departments of the commercial division, gaining practical experience in such departments as Costs, Internal Audit, Material Control, Purchasing, Sales Contracts, Shipping, Statistics, and Wages—to name but a few. After a satisfactory period in these departments, individual arrangements will be made for commercial apprentices to specialise in the type of work for which their natural aptitude and inclination makes them most suitable. This will continue until they finish their apprenticeship, at the age of 21.

* * * *

Throughout their first year of practical training the apprentices will be released from work for one day each week, with pay, to attend a Preparatory Commercial Course formulated by Mr. H. Bayley, Leyland's educational development officer. This course will be held in the company's own school, which the boys will also attend for one evening a week to learn a foreign language.

Later, further day release facilities will enable the boys to take the Ordinary National Certificate in Commerce at local technical colleges. On successful completion, suitable commercial apprentices will be given further day release to obtain the more specialised professional qualifications in the recognised Accountancy or Secretarial Associations or Institutes.

Fokker Triplane And A Knife Grinder



Fig. 1. An attractive model of a Fokker Triplane aircraft that won fame as a German fighter in the 1914-1918 war.

THE aeroplane was developed as a military weapon—as distinct from a purely observation or reconnaissance machine—early in the first world war, and one of the most interesting enemy types was the Fokker Dr.1 Triplane. The famous German "ace" pilot Baron Manfred von Richthofen flew one of these machines, and he chose them to equip his equally famous Richthofen "Circus". In the early part of the war, the Fokker Triplanes proved formidable opponents for the British S.E.5's and Camels.

The Fokker Triplane was powered by a 110 h.p. Oberusal engine which gave the aircraft a top speed of 121.5 m.p.h. at 8,000 ft.—at that time regarded as a very high speed. The weight of the aircraft was 1,259 lb., which seems very little compared with the 19,000 lb. of the Meteor jet fighter. The armament of the Fokker was two Spandau machine guns fixed forward.

An attractive Meccano model of this interesting fighter aircraft is illustrated above. It is not designed for construction from any particular Outfit, but for those who would like to spend a little time building this historic aircraft here are the instructions. The fuselage of the aircraft is formed by two $5\frac{1}{2}''$ Strips 1 connected together at their rear ends with a Corner Bracket 2 and two Trunnions 3. A Double Angle Bracket is then bolted between the Strips towards the front, and bolted to this Bracket are the $5\frac{1}{2}'' \times 1\frac{1}{2}''$ Flexible Plates 4 that form the bottom wing, and a Double Angle Bracket 5. Two Fishplates 6 are then bolted to the Double Angle Bracket 5, and these hold a $1\frac{1}{2}''$ Rod and two $1''$ Pulleys 7 that form the undercarriage.

The engine and propellor are formed by a $1\frac{3}{8}''$ Bush Wheel 8 attached with a $\frac{1}{2}''$ Bolt to an Angle Bracket 9 inside the fuselage. The propellor is a $2\frac{1}{2}''$ Strip. The struts are formed by two Angle Brackets and a Fishplate in the manner shown in the picture. It is necessary to bolt the Fishplate at an angle to give the correct stagger. This aircraft has three wings each formed by a $5\frac{1}{2}'' \times 1\frac{1}{2}''$ Flexible Plate.

Parts required to build the Fokker Triplane: 2 of No. 2; 1 of No. 5; 2 of No. 11; 9 of No. 12; 1 of No. 18a; 2 of No. 22; 1 of No. 24; 1 of No. 111; 2 of No. 126; 1 of No. 133; 3 of No. 189.

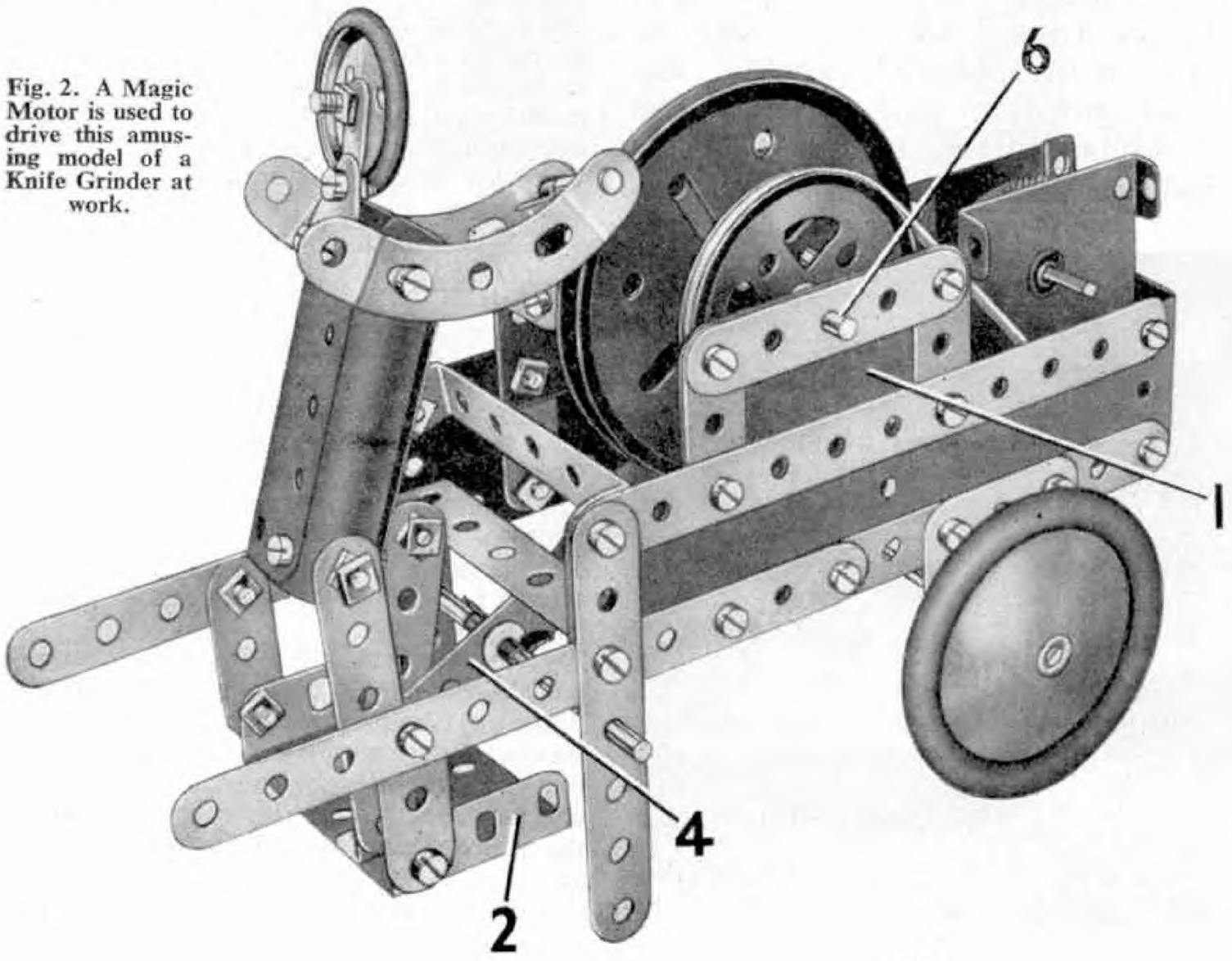


Fig. 2. A Magic Motor is used to drive this amusing model of a Knife Grinder at work.

KNIFE GRINDER

In building the realistic knife grinder shown in Figs. 2 and 3 it will be seen that each side of the cart consists of a $5\frac{1}{2}'' \times 1\frac{1}{2}''$ Flexible Plate braced along its upper edge by a $5\frac{1}{2}''$ Strip, and along its lower edge by two $5\frac{1}{2}''$ Strips overlapped five holes. The latter Strips represent the shafts of the cart. The sides are joined together by a $2\frac{1}{2}'' \times 1\frac{1}{2}''$ Flanged Plate at the front and by two $2\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strips at the rear. Each side is extended upwards by a $2\frac{1}{2}'' \times 1\frac{1}{2}''$ Flexible Plate 1 braced by three

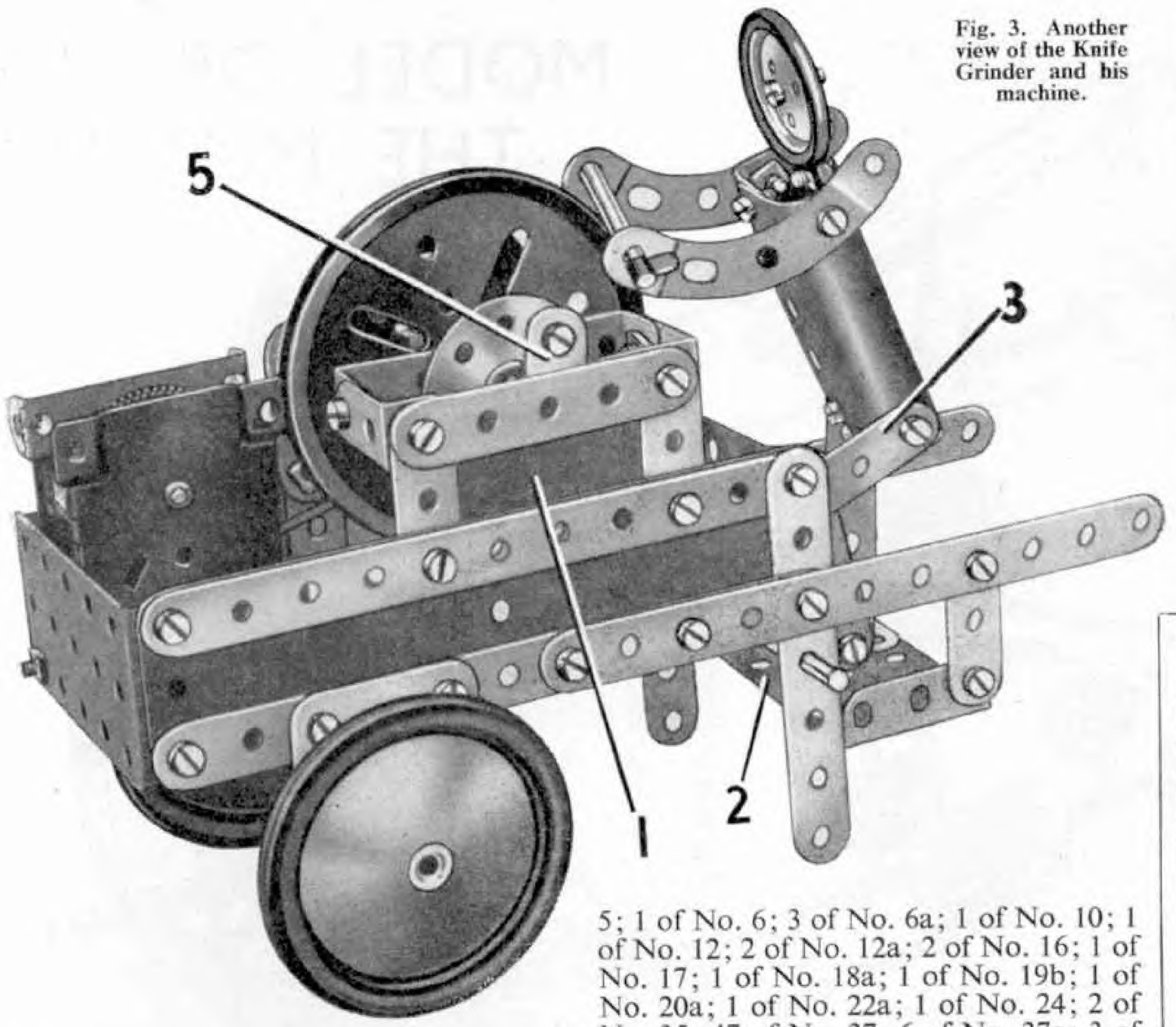


Fig. 3. Another view of the Knife Grinder and his machine.

2½″ Strips as shown. The legs of the cart consist of 3½″ Strips, and the Road Wheels are fixed on a 3½″ Rod mounted in Flat Trunnions. Those who possess the new plastic type Road Wheels, can of course use them in place of the wheels shown.

The body of the man is formed by two U-Section Curved Plates bolted together. One leg consists of a 2½″ Strip attached to the Curved Plates by a lock-nutted bolt, and fastened to a 2½″ × 1½″ Flanged Plate 2 by an Angle Bracket. The Flanged Plate 2 is connected to the shafts of the cart by two 1½″ Strips. The upper section of the other leg consists of a 1½″ Strip 3 fixed firmly to the Curved Plates. The lower section of the leg is formed by a 2″ Strip. This is attached to the Strip 3 and to a 3½″ Strip 4 by lock-nutted bolts.

The Strip 4 is pivoted on a 3½″ Rod mounted in the 3½″ Strips forming the legs of the cart. A 2½″ Strip 5 is attached to the inner end of Strip 4 by a lock-nutted bolt, and the upper end of Strip 5 is pivotally connected to a Bush Wheel fixed on a 2″ Rod 6. This Rod is mounted in one of the Flexible Plates 1 and in a 2½″ × ½″ Double Angle Strip attached to the opposite Flexible Plate 1 by two 1″ × 1″ Angle Brackets. The Rod 6 is fitted with a 3″ Pulley representing the grindstone and a 2″ Pulley that is connected by a Driving Band to a *Magic* Motor bolted to the front of the cart.

The man's arms consist of small radius Curved Strips, and the knife is a 1½″ Rod held in place by Spring Clips.

Parts required to build the model Knife Grinder: 6 of No. 2; 3 of No. 3; 8 of No. 5; 1 of No. 6; 3 of No. 6a; 1 of No. 10; 1 of No. 12; 2 of No. 12a; 2 of No. 16; 1 of No. 17; 1 of No. 18a; 1 of No. 19b; 1 of No. 20a; 1 of No. 22a; 1 of No. 24; 2 of No. 35; 47 of No. 37; 6 of No. 37a; 3 of No. 38; 3 of No. 48a; 2 of No. 51; 1 of No. 77; 2 of No. 90a; 2 of No. 126a; 1 of No. 155; 1 of No. 186; 2 of No. 187; 2 of No. 188; 2 of No. 189; 2 of No. 199; 1 *Magic* Motor.

CALLING ALL BUS SPOTTERS!

Bigger, Ever Bigger

BY DAVID KAYE

MANY of the larger bus operators are rejoicing now that August 1, 1961, has been safely passed. Why? Because as from that date buses and coaches can be 36 feet in length and 8 ft. 2½ in. wide. This, in its turn, means that the seating capacity of future vehicles, say from 1963 onwards, will be considerably increased, and at the same time each passenger will have more seating room so that nobody, apart from Billy Bunter, should protrude into the gangway.

With buses seating more than 80 passengers (double-deck) or 50 (single-deck), an operator can save money since fewer vehicles, and hence fewer crews, will be needed to maintain the same lifting power as at present. If you have ever visited the biennial Earls Court Commercial Motor Show (the next is in October 1962), you will have noticed that export models are already in these new dimensions. Some authorities, such as Glasgow Corporation, have been granted special permission to run longer single-deck buses on certain routes, but now this permission will be generally granted throughout the United Kingdom.

* * * *

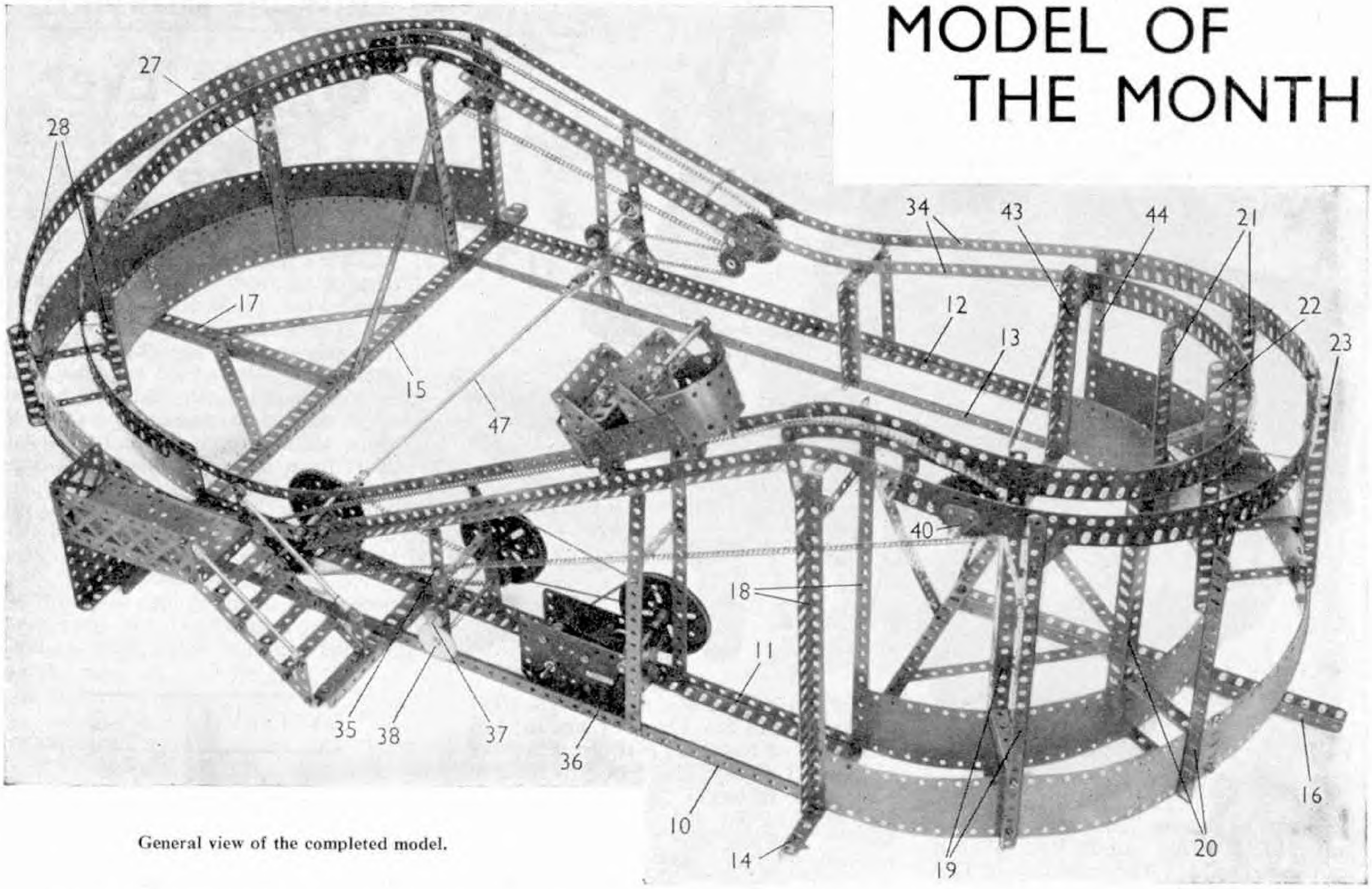
Let us, for a moment, consider how public service vehicles have increased in size over the years. When some of the earliest motor buses took to our roads in the first years of the present century many were little bigger than cars, carrying, say, eight or ten passengers. When the London General Omnibus Company's famous museum piece *Ole Bill* (alias B.340) was built in 1910 it carried eighteen passengers upstairs and sixteen downstairs, and weighed three and a half tons. By 1930 the new covered-top double-deckers, (*Cont. in previous column.*)

(*Continued from foot of third column*) weighing about six tons, were transporting 48 people. However, even as late as 1946 the average town bus weighed under seven tons and carried a maximum of 56 seated passengers. Festival of Britain Year—1951—saw a long-needed step forward. On the South Bank site stood Southdown Leyland PD2 No. 701, with its length increased by a foot to 27 feet, and its width by six inches to eight feet, carrying 58 passengers. Any bus (*Cont. on page 385*)



The revolutionary Leyland Atlantean pictured here in the colours of Ribble Motor Services Ltd.

MODEL OF THE MONTH



General view of the completed model.

MECCANO SCENIC RAILWAY

SOME of the most productive sources of ideas for Meccano models are the fair-ground and amusement arcades that form popular features of many seaside resorts. There must be few of us who do not have happy memories of jolly and exciting trips on huge roundabouts, scenic railways, oscillating boats, octopus and "Trip to the Moon" machines, to mention only some of the numerous amazing and often ingenious devices provided for our

BY SPANNER

enjoyment when on holiday, and what fun it is to spend a few hours in riding first on one and then on another of these jolly machines. Now, alas, holidays are over for most of my readers, but during the long, dark evenings of autumn and winter those of us who are Meccano enthusiasts can live again those happy summer hours by building for ourselves a model of one of these machines in miniature, and what is more, when it is completed we can set it working just like the real thing!

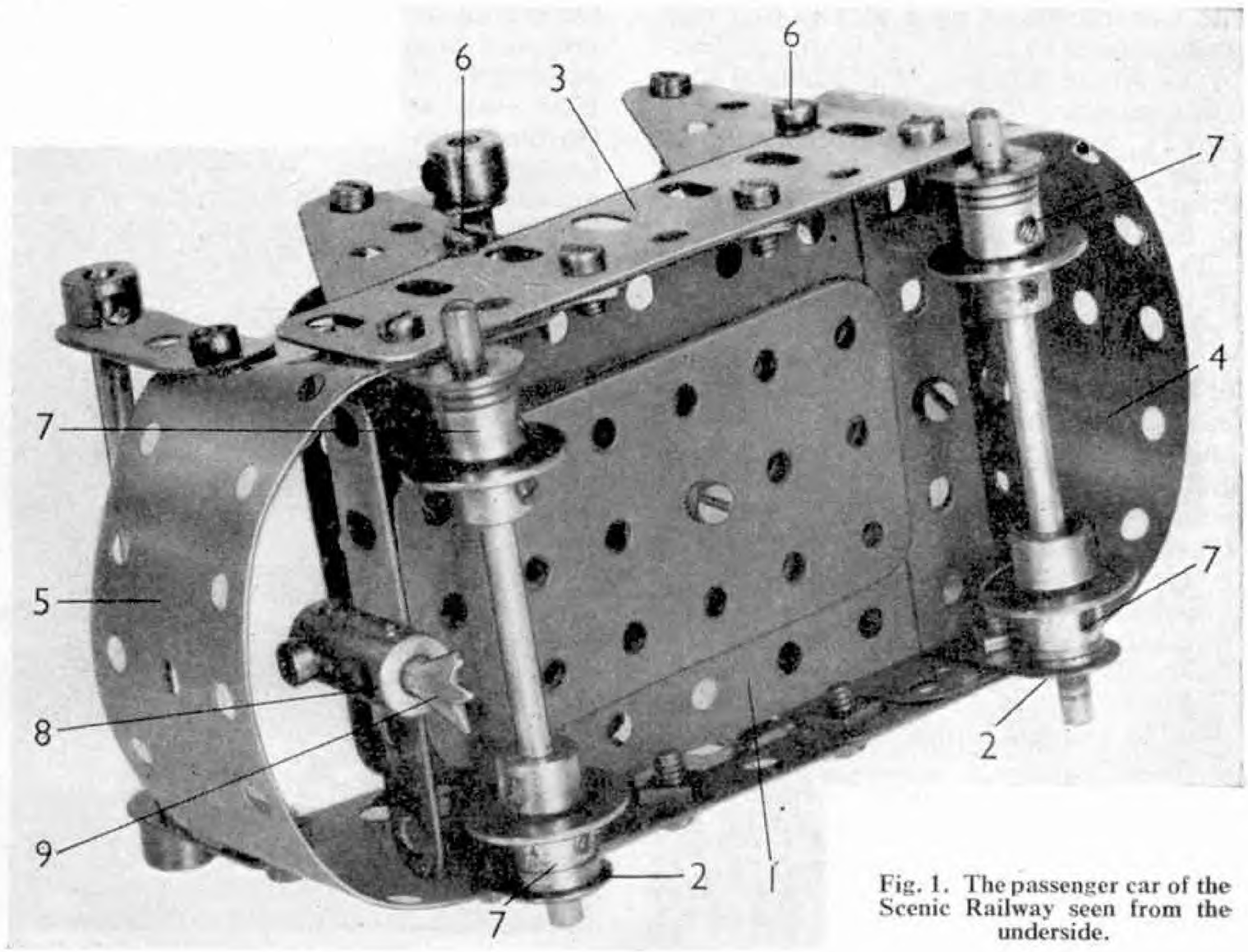
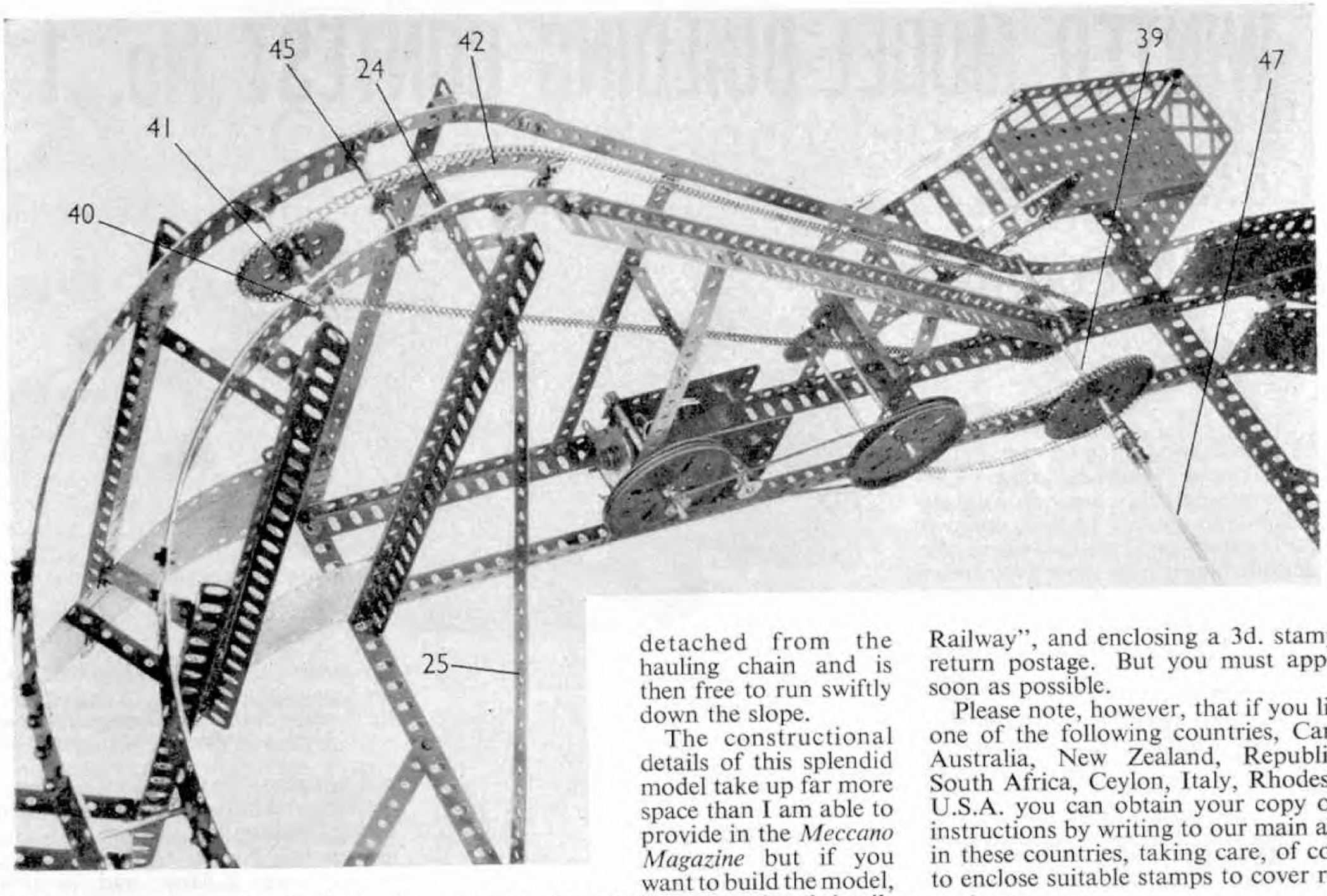


Fig. 1. The passenger car of the Scenic Railway seen from the underside.

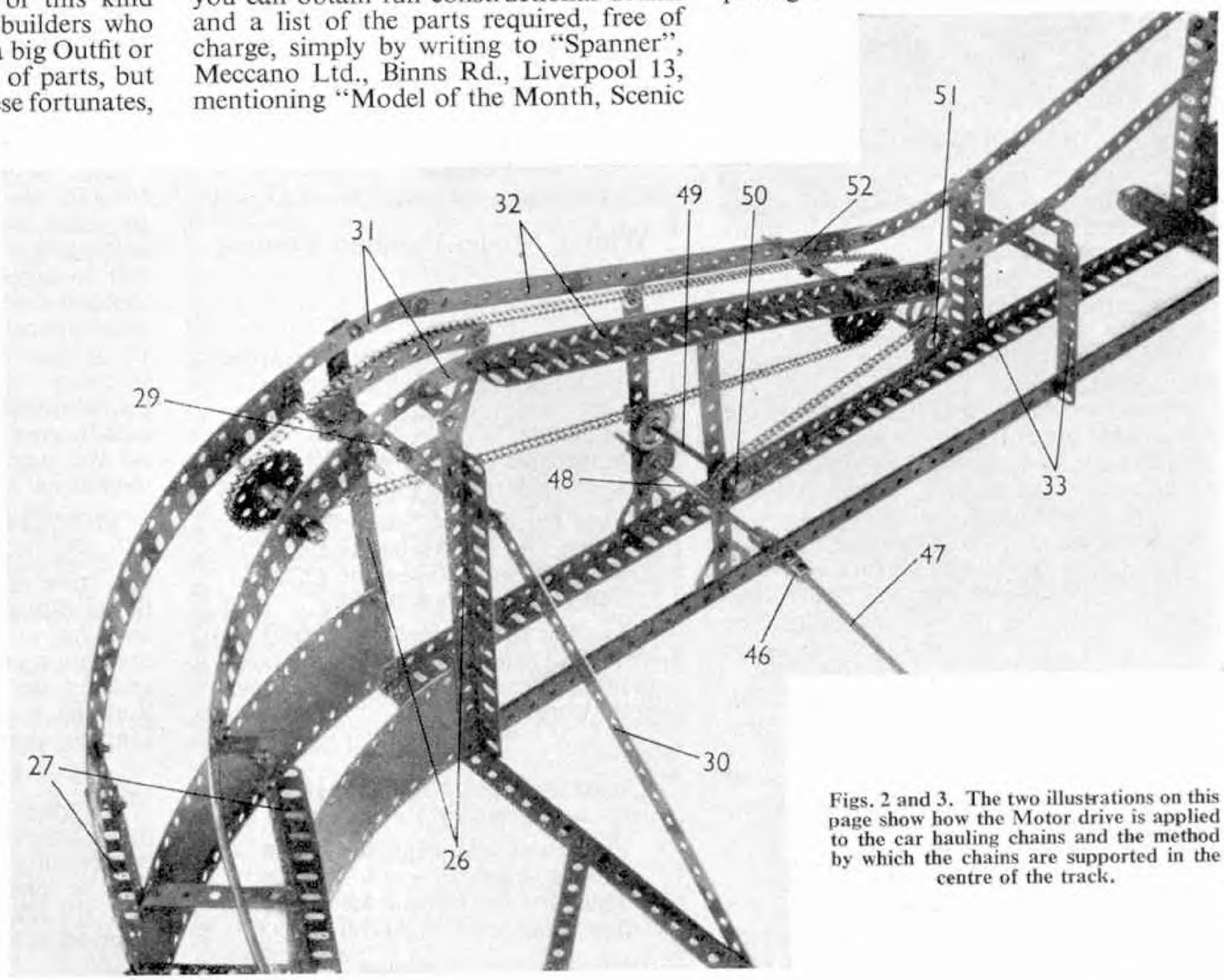


Admittedly most models of this kind are possible only to model-builders who are lucky enough to possess a big Outfit or a large and varied collection of parts, but if you happen to be one of these fortunates, I am sure you will find plenty to interest you in building and operating the attractive Scenic Railway I have designed for you and which is shown complete at the top of the opposite page. The model is not difficult to put together and it is one that can be operated by either a Clockwork or an Electric Motor, although the latter type is the more suitable and the one actually used in the model illustrated.

If you study the complete illustration, you will notice that the track of the Railway includes two steep climbing sections. When the car reaches the top of these it runs swiftly around the downward inclined track at the ends of the model, until it comes in contact with an ingenious chain hauling device that hauls it up the ascending incline. At the top of the climb the car automatically becomes detached from the hauling chain and is then free to run swiftly down the slope.

The constructional details of this splendid model take up far more space than I am able to provide in the *Meccano Magazine* but if you want to build the model, you can obtain full constructional details and a list of the parts required, free of charge, simply by writing to "Spanner", Meccano Ltd., Binns Rd., Liverpool 13, mentioning "Model of the Month, Scenic Railway", and enclosing a 3d. stamp for return postage. But you must apply as soon as possible.

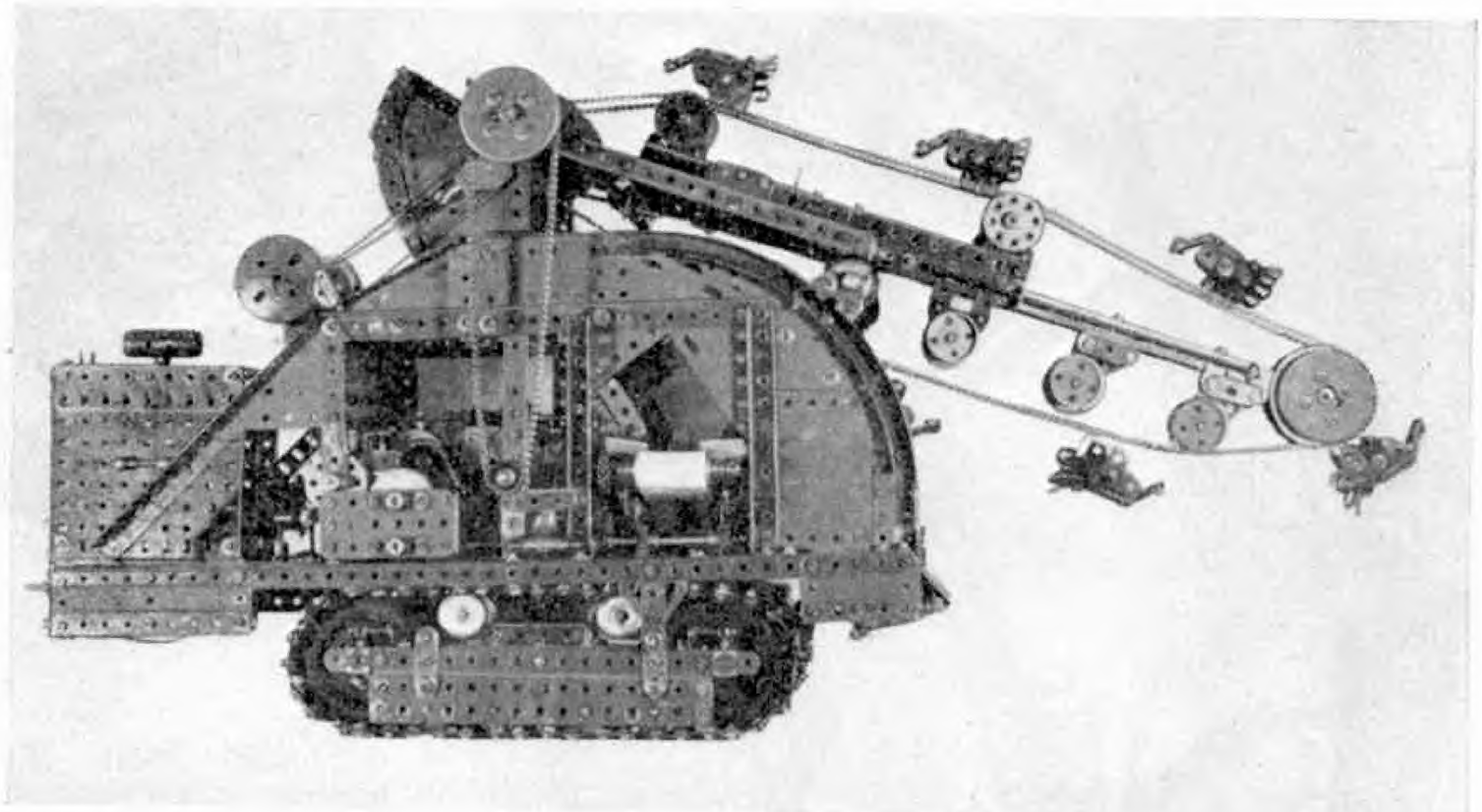
Please note, however, that if you live in one of the following countries, Canada, Australia, New Zealand, Republic of South Africa, Ceylon, Italy, Rhodesia or U.S.A. you can obtain your copy of the instructions by writing to our main agents in these countries, taking care, of course, to enclose suitable stamps to cover return postage.



Figs. 2 and 3. The two illustrations on this page show how the Motor drive is applied to the car hauling chains and the method by which the chains are supported in the centre of the track.

WINTER MODEL-BUILDING CONTEST No. 1

Cash Prizes For Meccano Models



This well-detailed trench digger won First Prize for H. W. Henry, of Strood, Rochester, in a previous "M.M." Model-Building Competition.

THIS month, we announce the first of the General Model-Building Competitions we shall be organising during the autumn and winter. In these contests we are offering cash prizes—which are considerably bigger than those awarded in recent competitions—for the most original and best-built Meccano models of any kind. The competitions are open to anyone who owns a Meccano Outfit, whether they live in this country or overseas. Models need not be confined to the parts actually contained in a given Outfit. Any amount of extra parts may be used as required. You will find the prizes to be awarded in the panel at the foot of column 2 and you will see that, by comparison with the autumn competition of last year, the first prize in Section A has been increased from four guineas to five guineas and the first prize in Section B (for senior builders) from four guineas to seven guineas, with proportionate increases in the remaining prizes.

HOW TO ENTER

If you wish to enter this Competition all you have to do is to think of a new model and then set to work to construct it, as neatly and realistically as possible, from standard Meccano parts. Models that are merely copies of models shown in Meccano Instruction Books or other Meccano publications will not, of course, be eligible.

When you have completed your model the next thing is to obtain either a good, clear photograph, or, if this is not possible, make a good sketch of it, and send this to us. *The actual model must not be sent in any circumstances.* However, if you cannot obtain a photograph and you are not much good at sketching, you can ask one of your pals to make the sketch for you. The model itself, however, must be your own unaided work.

It is also advisable to enclose with photographs or drawings a short description of the principal features of your model, mentioning any points of special interest you wish to bring to the attention of the judges.

EQUAL CHANCE FOR ALL

As we have already mentioned, the Competition is open to model-builders of all ages living in any part of the world, and in order to give everyone a fair chance entries will be divided into two separate Sections as follows: Section A, for competitors who will be under 14 years of age on December 31 next; Section B, for competitiors aged 14 years or over on that date. *In each of these Sections a separate set of prizes will be awarded*, and full details of these are given in the panel below.

The judges will award the prizes for models that are most original in subject, and are well-proportioned and sturdily constructed. Competitors who possess only small Outfits need not feel that they will not stand much chance against competitors with large Outfits at their disposal. Small, well-built, sturdy and original models will have a far better chance of success than a large and complicated structure that is rickety in construction and poor in design, and which does not show much originality in its subject.

The following notes may be helpful to competitors, especially those who have not entered a *Meccano Magazine* model-building competition before:

You may choose any subject you like for your model, but you should be careful to select one that you can reproduce realistically with the Outfit you possess. For instance, if you have only a small Outfit it would be difficult to make a really good model of a large type of crane. If, on the other hand, you choose a simple truck or windmill as your subject, the probability is that you will be able to make a really good job of it. It will also help you on the way to success if you choose a model that "works".

HOW TO POST YOUR ENTRY

Before posting your entry write your age, name and address, and the letter A or B, indicating the Section in which you are entering, in block letters on the back of each photograph or drawing. You should address the envelope: "Winter Model-Building Competition No. 1, Meccano Limited, Binns Road, Liverpool 13."

CLOSING DATE

Intending competitors should note that this Competition will remain open for entries until December 31 next. Entries may be sent in at any time between now and the closing date, but any entries received after December 31 will be disqualified.

Winter Model-Building Contest No. 1

THE PRIZES

The following prizes will be awarded in each Section of the Competition:

SECTION A

(Competitors under 14 years of age on December 31 next)

First Prize Cheque for £5.5.0
Second Prize Cheque for £3.3.0
Third Prize Cheque for £2.2.0
Ten prizes each of 10/6d.

Certificates of Merit also will be awarded in this Section to those competitors whose entries just fail to reach prize-winning standard.

SECTION B

(Competitors who will be aged 14 or over on December 31 next)

First Prize Cheque for £7.7.0
Second Prize Cheque for £5.5.0
Third Prize Cheque for £3.3.0
Ten prizes each of £1.1.0

WITH THE SECRETARY

Club and Branch News

Open Week At Consett

DURING the eight years that the Consett and District Y.M.C.A. M.C. has been affiliated to the Meccano Guild its activities have several times been illustrated in the *M.M.* This month, I am reproducing two more of their excellent photographs, taken during a recent Open Week.

The upper picture shows Fred Campbell receiving his award, as the year's best member, from Mrs. Davis, wife of the Y.M.C.A. Divisional Secretary. Fred also won the award for the model of the year. In the lower picture is seen the fine Meccano model of the Runcorn–Widnes Transporter Bridge, built by Mr. Snowdon. The model incorporated a 3d. slot mechanism and by this means collected 10/–, which was donated to the Y.M.C.A.'s work overseas. Readers will recall that the actual transporter bridge ceased operation when the adjacent new high-level road bridge, described in last month's *M.M.*, was opened by Princess Alexandra on July 21.

CLUB NOTES

ANSFORD SECONDARY MODERN SCHOOL M.C.—Cranes have been a very popular model-building subject, and at a recent school fête the Club display included the Model 8.15 Dockside Crane modified so that it could be used as a mechanical grab. It could be worked to grab a "whopper stopper", and anyone grabbing three in the allotted time received a prize. The Model 7.21 Shipyard Crane was also on the Club stall, and visitors who "had a go" with the mechanical grab were allowed to operate the shipyard crane. These two models were assembled in just over a week, and made 15/– at the fête, the money being donated to a fund for a school swimming pool.

Other Meccano models constructed at the weekly meetings have included a Battleship by Alan Ward and Peter Eyres; Deck Chair by Ronald Clarke and Sydney Handford, and a Locomotive Crane by Handford and Terry Parsons. Michael Ridout and Philip Sullivan constructed a Pithead Gear, and Sullivan, Christopher Sweet and John White built a Hay Elevator from instructions in a pre-war Meccano Manual. At the end of term all models are dismantled, and the final meeting is spent in stocktaking. *Leader:* Mr. H. J. Taffs, The Hollies, Florida Street, Castle Cary, Somerset.

INDIA

MYSORE M.C.—Membership is increasing and all are enthusiastic. Mr. K. S. Subbakrishna, who has been a member of the Club since 1955, has been appointed Joint Secretary. The Club celebrated its eighth anniversary on August 6 and the event was a great success, about 75 people—members and guests—attending. Among distinguished guests present was Dr. L. Sibaiya, former Principal of the Yuvaraja College, Mysore, and Professor R. Iyengar, former Head of the Department of Mathematics there. An excellent tea was provided, and during the evening the President addressed the gathering and distributed prizes to the winners of the anniversary sports held during the last week of July.

About 18 members—mostly technical students—made up a Club party which visited the Hydraulic Research Station at K. R. Sagar. Great interest was taken in the various divisions of the station, and in the work which they carried out. *Secretary:* Mr. A. P. Krishna Murthy, B.Sc., 955 "Srinivasa", Lakshmipuram, Mysore 4, India.

NEW ZEALAND

ST. JOHN'S (DUNEDIN) M.C.—The exhibition on June 10 last was a great success, £4 4s. being raised for C.O.R.S.O. (Council of Organisations for Relief Services Overseas). In addition to a splendid display of Meccano models, which included a VertiVeyor, there were Dinky Toys, model boats and aeroplanes, and model railways. Mr. King built a very detailed car chassis and S. Harbour a huge mechanised tank. At a subsequent meeting Miss Steel, one of the leading figures in C.O.R.S.O., visited the Club and thanked members for their good work in raising the sum mentioned.

The President sprang a surprise at one meeting when he produced a weird model vehicle which he had built and called the *Troopmobile*. The model had four-wheel drive, with a small pair of wheels steered at the rear, and was powered by an electric motor. It could quite easily climb the President's arm! *Secretary:* William Earl, 60 Ann St., Roslyn, Dunedin, New Zealand.





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FOR OTHER STAMP ADVERTISEMENTS SEE ALSO PAGE 383

For Stamp Enthusiasts

The Island of Singapore

By F. E. Metcalfe

ONE of the more popular countries in the British Commonwealth, as far as stamp collectors are concerned, is Singapore, and with its abundance of interesting stamps this is not surprising. You see, it is a country for everybody, and while there are plenty of scarce—and, in consequence, fairly expensive—stamps, for those with deep pockets, there are also plenty of cheap stamps for we "common or garden" collectors. In fact, it is not so long since I saw a junior with a quite nice little collection which had not cost more than a pound, and I will not be surprised if it wins the school prize next year.

In view of all this, no wonder the set of two stamps issued on June 3, to mark the second anniversary of full internal self-government, sold like hot cakes. I would be very surprised if I was told that no *M.M.* reader had bought a set; still, there are probably some who did not, and if you are one of them now is the time to buy one. As a matter of fact, I am going to suggest you give rather special consideration to Singapore stamps, for they are well worth it, being the postal issues of one of the world's important little countries.



A few words on Singapore's geographical situation might not be out of place, therefore, under the circumstances. Singapore is in a strategic position indeed, and although it has only a population of just over one and a half million the large Chinese section of the population, backed up by Malayans and Indians, see to it that, placed as it is at the cross-roads of South East Asia, Singapore takes full advantage of its situation. Its trading in rubber, petroleum, tin, copra, etc., is really extensive considering the country's size.

Founder of all this prosperity was an Englishman, Sir Stamford Raffles who, when he arrived in Singapore in 1819, found merely a jungle-covered island, sustaining only 150 people. The Sultan of Johore, who was then in charge, granted the British Government permission to establish a trading station there, and the resultant free port has never looked back. In 1824 another treaty was signed, and Britain became sovereign over the territory.

I have said that Singapore never looked back, but that is not the whole story, for in February 1942 the Japanese moved in (hence all those stamps, with Japanese characters overprinted on them, which were used in Singapore as well as in the rest of Malaya) and they were not turned out until September 1945. Hitherto, Singapore had been joined up with the



Straits Settlements and, naturally, had used the same stamps, but as the Japanese moved out, a British Military Administration took over, and the then current stamps (the small type bearing the head of King George VI) were overprinted B.M.A. You can have a great deal of fun with this issue, as some of them are easily come by and are, therefore, quite cheap.

Then came the big change, and on April 1, 1946, Singapore ceased to be part of Straits Settlements and became a Crown Colony. In 1948 the first stamps appeared overprinted Singapore (those current for the Straits were used for the purpose) and here it should be noted that this first issue was perforated 14. None of the stamps is dear, but the 40c. value is now getting rather hard to come by. In 1949 new printings appeared, in a new and very fine perforation ($17\frac{1}{2} \times 18$); so fine, in fact, that none of the perforation gauges went high enough, and new ones had to be prepared. I well remember the surprise we all got when these stamps appeared.

A few new values appeared in 1952—all worth taking up—5c., 8c., 12c., 20c. and 35c.—for there had been changes in postal rates which made the alterations necessary. And then, in 1955, we got the grand "ship" set which is still current. This is a very appropriate issue for a country like Singapore, which depends so much on shipping, and what is important to we collectors is that copies are cheap. Apart from the attractive designs, which please everybody, these stamps are of particular interest to an advanced collector because some of them have been printed from flat bed plates and others from cylinders; and in several instances it is quite easy to separate the one from the other. Readers who are interested will find full details of these differences in the Commonwealth QE Catalogue, a new edition of which appears this month.



More political changes took place, but I am only mentioning them here because they resulted in stamp changes as well. For instance, the "National Day" stamps were issued to mark these events, and on June 1, 1959 we got a fine set of six values to commemorate the New Constitution, by which Singapore, at long last, really had internal self-government. The following year, on June 3, a couple of stamps bearing the national flag came out to mark the first anniversary of the new Constitution, and this year the second anniversary was publicised by the issue of another pair of stamps. It seems fairly certain that there will be a set of new stamps every year until there is another political change, with its resultant philatelic recognition—the favourite method nowadays, apparently, of marking such events. It is cheap and very thorough publicity, which stamp collectors mostly pay for, but we don't grumble so long as they don't overdo it. No one is likely to complain about a couple of attractive stamps costing a mere copper or two.

Well, that more or less brings us up to date. I do strongly recommend Singapore as a handy little country to collect, especially as most of the stamps are within the reach of all pockets. So good hunting, if you decide to take up Singapore.

Stamp Gossip

Aer Lingus

IT is 25 years last June since this Southern Irish air line started operations, and with every justification the Government of Eire has issued two stamps to mark the event. I have written "with every justification", because those of us who have flown with this air line know that the Irish have every right to be proud of the service, which is really first



class. And how useful it is to those of us who wish to nip over there every so often. As a matter of fact, by the time these lines are in print I will, I hope, have taken a couple of flights, in the same month, to Ireland.

On two stamps in the Eire set the 'planes depicted are a de Havilland Dragon, as used originally, and a Boeing jet-liner as used on some flights now. Get

a set, as they are almost certain to increase in value as time goes on, but perhaps not to the same extent as the "Europa" pair which Eire put out last year. These latter stamps, as I write, are selling for a pound in Europe to collectors who are trying to get all the "Europa" stamps which the various countries—including our own—issued during 1960.

A WARNING

From what I see at first hand, and from the letters I receive, I know how popular



are modern U.S.A. commemorative stamps—with young collectors at any rate—for not only are the designs often very attractive but there are plenty of used about. On an average, about 120,000,000 stamps of each design are printed, and that's certainly enough to go round, and, of course, it also means that they are cheap to buy. That's fine. However, one was issued which can be quite a danger—the "Kansas Statehood Centenary" stamp, the paper of which is yellow. That would be all right if it would stay as it is, but if one of these stamps happens to be included in a mixed batch which you are soaking in water to remove from paper, then the yellow will run badly and you will finish up with some piebald specimens. So please take care to see that you wash off these "Kansas" stamps by themselves. Incidentally, isn't the design a refreshing change?

AFRICAN PROVISIONALS

I have referred previously to African Provisionals but do not hesitate to do so again, for never has a group of stamps provided so much excitement for British Colonial collectors. At least, I have never known of any, and my memory goes back a lot further than I would have it go. Just for those readers who have not bothered to inquire into the why and wherefore of these issues, it can be explained that when South Africa changed over from pounds, shillings and pence to cents and rands, the British Protectorates of Basutoland, Bechuanaland and Swaziland had to make up their minds whether or not to follow suit, for, situated as they are, they had very close connections with South Africa. Even so, they were loth to take such a step, and it was only at five minutes to twelve (as Hitler used to say) that they decided to follow South Africa's financial lead.



But what about postage stamps? It was too late to do much (Basutoland *did* manage to change the design of one value and Swaziland those of five values) so it was decided to overprint existing stamps with the equivalent in cents of the sterling value. This was done, but the demand from collectors was so great—it is estimated that Swaziland alone sold £100,000 worth—that further overprintings had to be made; these proved to be different, and the fun then really began. When I tell you that some of these overprints are selling at £50, and others at £150 each, you will understand why collectors have been so anxious to get hold of copies, hoping that some will prove scarce and, therefore, valuable.

Now I am sure lots of *M.M.* readers will have obtained some of these overprints, and may be wondering whether they have landed any of the scarce examples, and how they can find out. Well, to get over this, full details, with illustrations of all the different types, will be included in the new edition of the Commonwealth QE Catalogue, which will be published at the end of this month. Meanwhile, just hang on to any that come your way. Many of the scarce ones were used up for postage before their scarcity was recognised. For instance, four sheets



of the stamps selling at £150 each (of the six which were overprinted) were actually used up before they were spotted as being different. The stamps will be somewhere, for nobody destroys stamps from the smaller territories, even if they don't collect them themselves. So ask Uncle if he has had any mail lately from Swaziland, or the other territories concerned.

UNITED NATIONS

Perhaps because the headquarters are in the United States and U.N. stamps can be used there if the mail is posted in the United Nations building in New York, these issues are particularly popular over there, more so, in fact, than they are here in Britain. But there is good news for those here who do collect what is really a

(*Continued on next page*)

By E. W. Argyle

Locomotives On Stamps



A FULL-SIZE replica of the broad gauge (194.5 cm) "De Arend", the first locomotive to run in the Netherlands, is depicted on that country's 5 cent stamp of 1939. This replica is now on show in the Railway Museum at Utrecht. The original was built by Longridge at Bedlington, England, in 1839 (Works No. 119) and was withdrawn from service in 1857. The replica was constructed in the Netherlands Railways workshops at Zwolle in 1938. The De Arend ran on the first line in Holland—from Amsterdam to Haarlem—a distance of about ten miles.



"The Flying Hamburger", of the German State Railways, was Germany's first railcar and made its first appearance in May 1933. On its maiden journey from Berlin to Hamburg it caused a sensation by attaining a maximum speed of 100 m.p.h. It was driven by a diesel-electric engine, and during the first two years it carried 100,000 passengers more than 200,000 miles.

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JOHN ABEL, 65 Belfield Road, Paignton, Devon

FOR OTHER STAMP ADVERTISEMENTS SEE ALSO PAGE 380

Stamp Gossip—

(*Continued from previous page*)

very interesting group of stamps, as the Crown Agents (who handle so efficiently most of the British Commonwealth issues) have undertaken to distribute these U.N. stamps to the trade throughout the Commonwealth. With the service which will result, dealers will have more incentive to stock them, and in the long run this is bound to lead to an increased demand. I will deal more fully with these interesting issues in the near future. Meanwhile, better check up on what U.N. stamps you have got.

STAMP MARTS

Many readers—and I was certainly one—would be interested in the Buenos Aires reader's short article in the June *M.M.* about the stamp mart which takes place on a Sunday morning in one of Buenos Aires' parks. My particular interest stemmed from the fact that I lived in Argentina for several years, but I am afraid I never came across fellow-collectors swopping stamps outside. I suppose it is something which has come about fairly recently. One day I hope to go back to Buenos Aires for a holiday, and if I am lucky enough to do so I will certainly make a bee line for Plaza Rivadavia. I have seen the Paris Stamp Mart, but that has changed quite a lot since the early days; at least, the habits of collectors have changed, for none are more particular than the French about the condition of the stamps they are willing to put in their albums. Yet years ago it used to be quite a common practice for those who had stamps to sell to affix them to a board for display with—believe it or not—tacks.

THE TIP OF THE MONTH

I am afraid I have not left myself much room for my tip, this month. The stamps I have in mind are those overprinted by Pakistan when the currency was changed at the beginning of the year. They are obsolete now, of course, but still obtainable for very little, and I think they are likely to rise in price quite a bit as time goes on.

RAILWAY BOOK REVIEW

"DISCOVERING RAILWAYS" (University of London Press Limited, 9/6) is one of a series of *Discovery* reference books dealing as a whole with a variety of subjects. The railway book, by G. R. Halson, M.A., is in two main parts, in the first of which the chapters deal with railways and railwaymen, giving a general picture of the changing railway scene at different periods and a brief glimpse of the work of train crews, signalmen and track maintenance staff.

Part II is correctly described as a reference section, covering the origin of railways, route planning, operation, and maintenance work. Most useful to anyone, rail traveller or not, is a chapter describing the correct reading of timetables, which is perhaps a special skill not all of us possess. Quiz questions in this section provide useful exercise for the reader, and enable him to see how much he has learned from his reading. A list of useful railway books completes the text.

Illustrations are not numerous, but they bear directly on the subjects dealt with, half-tones being supplemented by diagrams and sketches.

BRITISH RAILWAYS ORDER

A £500,000 contract for 862 semi-trailers and more than 300 tractors with automatic coupling gear has been placed with Scammell Lorries Ltd., of Watford, by British Railways.

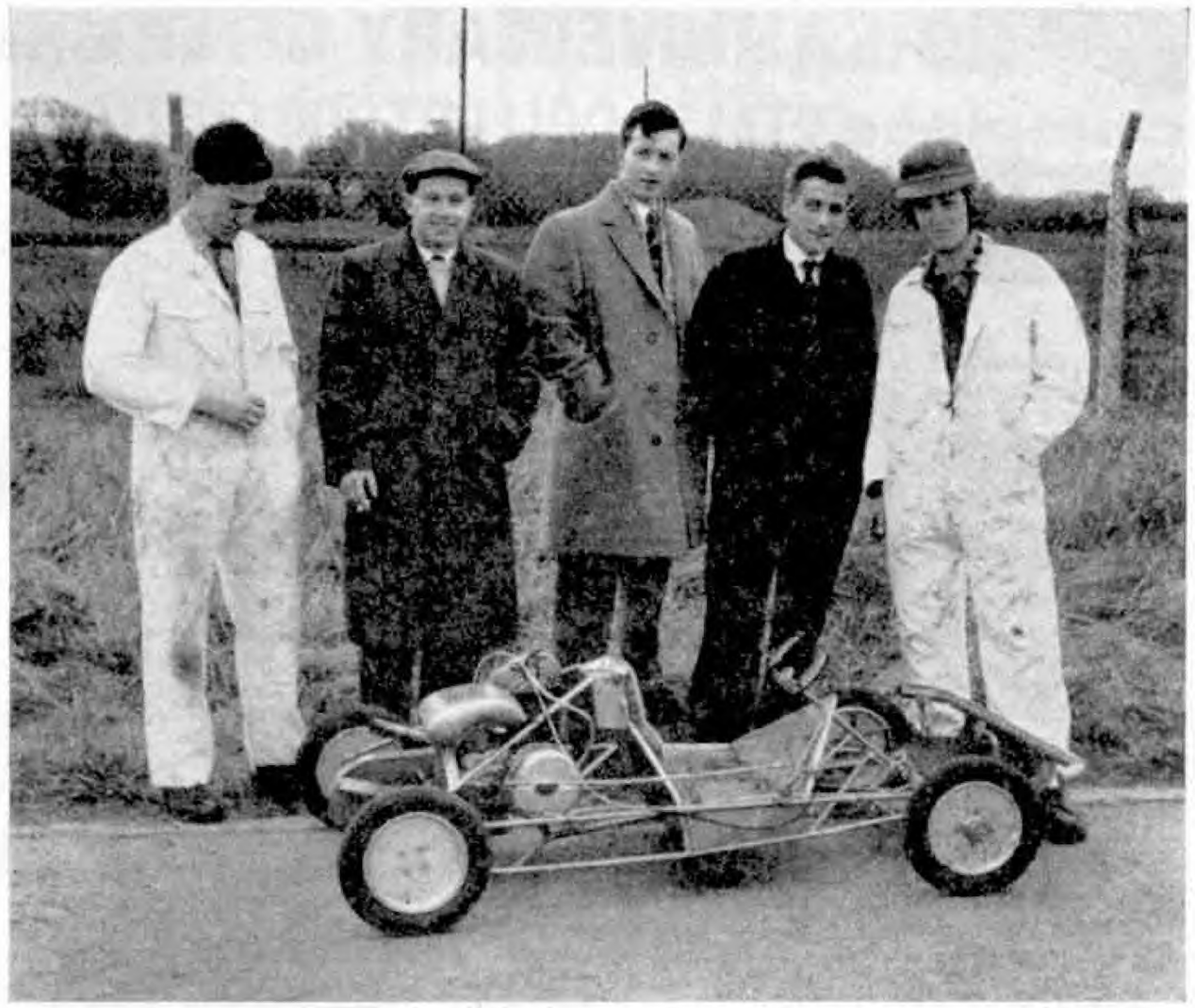
The tractors are three-wheeled Scammell Scarab mechanical horses similar to 7,000 previously purchased by British Railways. The new order includes 6-ton petrol and diesel-engined models, and 3-ton petrol-engined models. The trailers range from 3 to 12-ton models, and are of the same types as some 23,000 which Scammell have supplied to B.R. in the past.

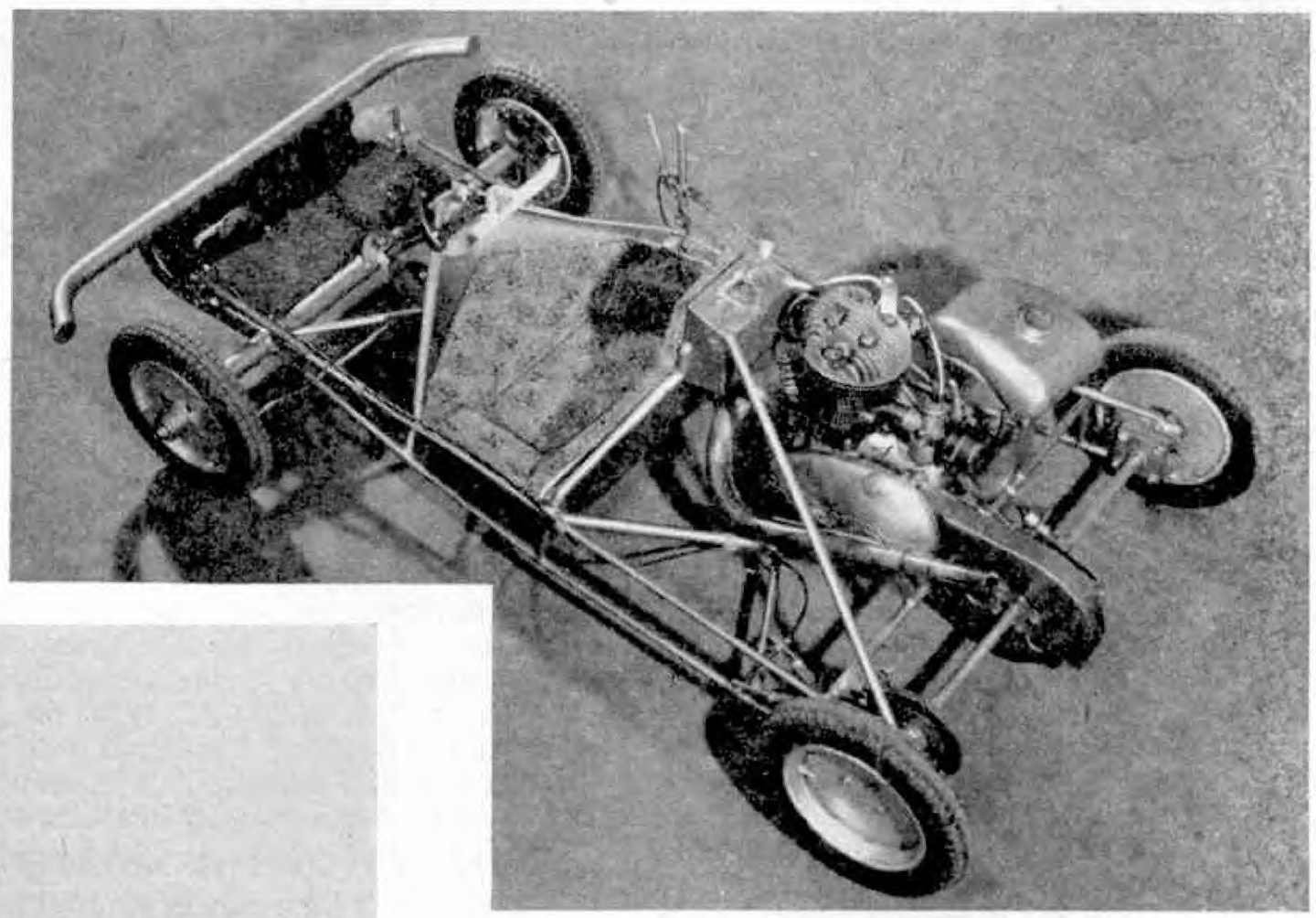
Of General Interest

FIVE student engineers of Leyland Motors Ltd. have designed and built, in spare time available between working and studying, a Kart built to Class 4 specifications of the Royal Automobile Club. In apposition to the internationally-known Leyland Royal Tiger Worldmaster bus the small car has been christened *Royal Mouse*.

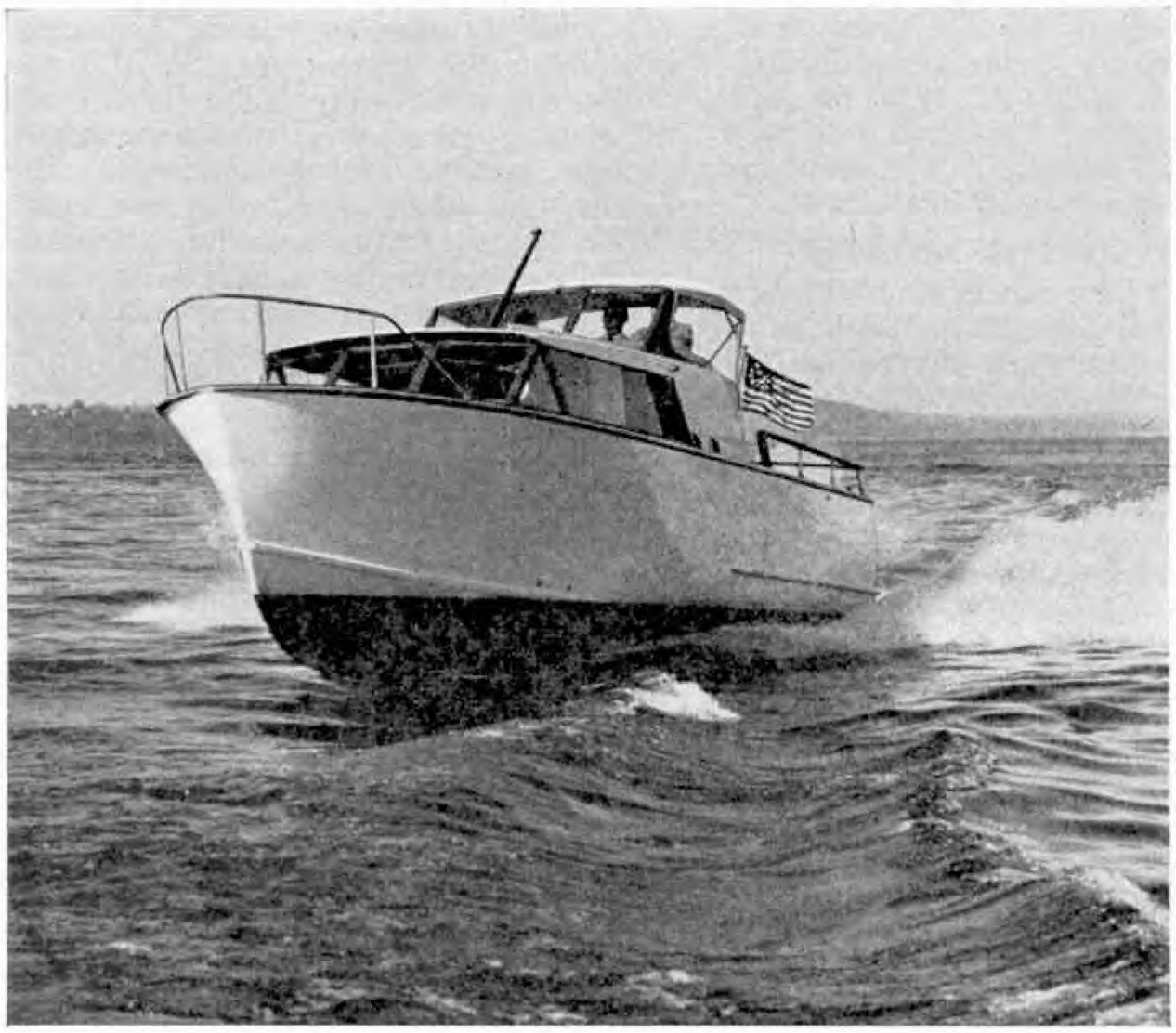
Originating in America, Kart-racing has been accepted with enthusiasm in this country. The students' Kart is powered by a tuned 197 c.c. Villiers 2-stroke engine with unit-constructed 3-speed gearbox. This is mounted on a multi-tubular space frame of $\frac{1}{2}$ inch and $\frac{5}{8}$ inch diameter steel tubing, instead of the normal ladder frame. It also has independent front suspension of the sliding pillar type, a feature which is unusual on these miniature racing cars. Steering is direct, and there is provision for incorporating different Akermann angles on the steering arms.

Main feature of the *Royal Mouse* is the rear axle, which is of split design. Two disc brake pads from a well-known make of sports car are fitted to the end of the split axle, forming a combined brake and a type of limited slip differential. This device enables either one or two axles to be driven, yet ensures that both rear wheels are braked. Total outlay on the Kart was £10.





Pictured at the top of the page are the five students who built the* Royal Mouse.** ***Left to right they are Barry Martin of Lytham St. Annes; Eric Platt of Bolton; Michael Drinkwater of Adlington; Michael Goodier of Wallasey and John Hyslop of Wrexham. Right: This bird's eye view of the Kart shows its immaculate finish.



Seen cutting the water of Lake Washington, Seattle, is a 26-foot gas turbine-powered express cruiser believed to be one of the fastest of its type in the world. It is being operated by the Boeing Industrial Products Division, of America, in connection with various tests concerned with marine systems and instrumentation. This craft has attained a top speed on Lake Washington of 33 miles an hour. With conventional power, the boat has a top speed of eighteen miles an hour.

The power plant, termed the Boeing Turbo-Mariner, is a single-stage, simple-cycle, free-shaft gas turbine. The unit weighs 660 pounds, including reverse-reduction gearing, and burns diesel fuel. A comparable conventional power package would weigh about 1,000 pounds. The Boeing test installation incorporates a V-drive. Earlier models of the Boeing Turbo-Mariner power plant have been used in numerous marine installations from landing craft to minesweeping launches.

Pullman, Past and Present—

(*Continued from page 351*)

1906, although on two railways some cars were painted crimson lake.

A departure from the familiar Pullman livery occurred last year when the first diesel-electric Pullman trains were introduced between St. Pancras and Manchester, Paddington, Birmingham and Wolverhampton, and Paddington and Bristol. These are painted Nanking Blue, relieved by a broad white band extending the length and width of the window section along the sides of each car. The rounded nose of each of the power cars bears the Pullman Car Company's coat-of-arms, which is also carried on the white painted band, midway between the last pair of windows at the end of each vehicle. Beneath each of these coats-of-arms, and just below window level, so that it falls on the blue portion, is the familiar word *Pullman*, lettered in white.

Air News—(*Continued from page 357*)

On one occasion, the aircraft started with its nose-wheel completely immersed and one main wheel 18 inches deep in sand and mud, yet managed to extricate itself, using less than three-quarters of its available power, and continued taxying under full control.

Careful examination after every test showed that the propellers were unscathed and the wheel bays completely free from flying sand and mud. In fact, no fault of any description was found.

WORLD AIR CRUISE

The latest in cruises is a "Private 'plane around the world" tour which B.O.A.C. are offering as a 31-day, £750, all-inclusive trip by turboprop Britannia 312. The aircraft is due to take off from New York on the 14th of this month and will take its lucky travellers to San Francisco, Honolulu, Tokyo, Hong Kong, Singapore, Bangkok, Delhi, Iran, Athens and London.

They will use the Britannia as they would a luxury car, and it will wait for them at each airport until they start on the next stage of their round-the-globe adventure. Passengers will be encouraged to make the personal acquaintance of their captain and crew, who will be with them throughout the tour. All flying will be done in the daytime, with departures never earlier than 9 a.m. Nights will be spent leisurely at first-class hotels.

For anyone with £750 and a month to spare, there could be no better way of seeing the world.

Photographers' Page—

(*Continued from page 365*)

and recommendations are given for most subjects and lighting conditions. It is well worth while following these instructions very carefully, or, if you happen to have an exposure meter, making use of it.

Once your exposure is settled you must decide on what aperture and shutter speed you are going to use. Small apertures need slower shutter speeds; large apertures shorter ones, and the combination you use will depend on the subject. If your subject is moving you must select a fairly fast shutter speed and must, therefore, use a large aperture. If your subject is reasonably still you can choose the most suitable aperture to bring everything you want into sharp focus.

Remember that depth of field becomes less the closer you are to your subject. This is very important in close-up photography, which is next month's subject.

Hornby Railway Company—

(*Continued from page 369*)

in its own way. The moulded bodywork is made to represent a type of vehicle having drop sides, the real sides being formed in three sections. Hinge fittings and the strengthening members characteristic of steel-built wagons are incorporated and the planked flooring is represented in a convincing manner.

The High-Sided Wagon is of shorter wheelbase than the other two just described. It is a remarkably fine model of this type of rolling stock, the numerous special features of its steel construction being reproduced precisely in the moulded bodywork. Thus, doors, and door fittings, angle-irons and other features are all clearly represented, as also is the special profile of sections of the sides.

Now, what about the Coaches in *The Talisman* and *The Caledonian* Train Sets? Some of you will already be familiar with these vehicles as they were first introduced (in W.R. livery) in *The Red Dragon* Train Set towards the end of last year, and have been listed in W.R. brown and cream and in B.R. maroon for some time. The Coaches are of two types, First/Second and Brake/Second respectively, one of each being included in the Train Sets concerned.

Metal bodysides and bases are used, with moulded ends, roofs and underframe detail. Window openings are "glazed" and through them you can see that the internal fittings reproduce the arrangement of seating and corridor partitions of B.R. Standard side-corridor stock.

Ship With an Exciting History—

(*Continued from page 371*)

facilities, these include squash racquets courts, a gymnasium, swimming pools, Turkish baths and a shopping centre. Elaborate precautions ensure safety, and all the latest devices and appliances are incorporated to ensure the highest degree of navigational efficiency in any emergency. A special feature of the *Queen Mary* is the double bottom which extends for the whole length of the vessel. The work of fitting Denny-Brown stabilizers was undertaken during her annual overhaul in 1957 and completed twelve months later.

Her red funnels, striped with narrow black bands, readily identify her as one of the famous Cunard liners.

When in dry dock, this huge vessel can, on a clear day, be seen for miles from the low-lying coastal road approaching Southampton, strangely incongruous, like a ship in a field, with houses, greenery and telegraph poles in the foreground. Conspicuous in the midst of a busy dockside where, by comparison, skyscraper cranes dwindle to the size of toys, she awaits the moment when she is declared ready to put to sea again.

Calling All Bus Spotters!—

(*Continued from page 375*)

more than 27 feet in length had to have a third axle, and normally these few vehicles were trolleybuses, such as the batches purchased by Bournemouth Corporation.

Then, in 1956, the maximum length of a two-axle bus was increased to 30 feet. It is only in the last eighteen months that most operators have had any sizeable numbers of these giants. The front-engined Leyland PD3 or A.C.V. Bridgemaster can carry up to 72 passengers, whereas the more revolutionary Leyland Atlantean and Guy Wulfrunian, with side-saddle engines, have seats for up to 78 people. Meanwhile, Midland Red have perfected an even more unorthodox horizontal-engined double-decker, which they call the D 10 (car 4943 in their fleet). Where will all this end—a ten-tonner carrying 100 fares by 1970? Who knows? But one thing is certain, we shall have to have wider, straighter roads to carry these monsters.

They Were Different Then—

(*Continued from page 364*)

it has a lighter and lower streamlined body and is capable of cruising at well over 100 m.p.h. for long periods. The complete car costs just over £9,100.

Cars in the current Bentley S2 range are all fitted with the Rolls-Royce V8 "all aluminium" engine, which is a masterpiece of British engineering, and has a capacity of 6230 c.c. Gone are the days when you changed the Bentley's gears manually through a right-hand gate. The S2 has automatic transmission, servo-assisted brakes, power steering and, if specified, a complete refrigeration unit stowed under a front wing.

One of the most attractive coachwork styles fitted to the Bentley S2 chassis is the J. H. Mulliner Convertible Coupé. Finished in Tudor Grey with black head, it is equipped with every conceivable aid to motoring refinement. It sells in the U.K. for £8,065, but you can buy a Dinky Toys model of this magnificent car for only 6/3d.

NELSON—BEST-KNOWN BRITISH SAILOR

The answer to the question at the foot of Arthur Nettleton's article on page 349 is: On the outskirts of Yarmouth.

Fireside Fun



"Quick! Start a collection for a new hat for the foreman!"

The judge was becoming impatient at the accused for continually stating things against the evidence. "I hope you remember," he cautioned the man, "that you have sworn to tell the truth."

"Yes, sir, I remember."

"And do you know what to expect if you don't tell the truth?"

"Yes, judge, I expect to win the case."

* * * *

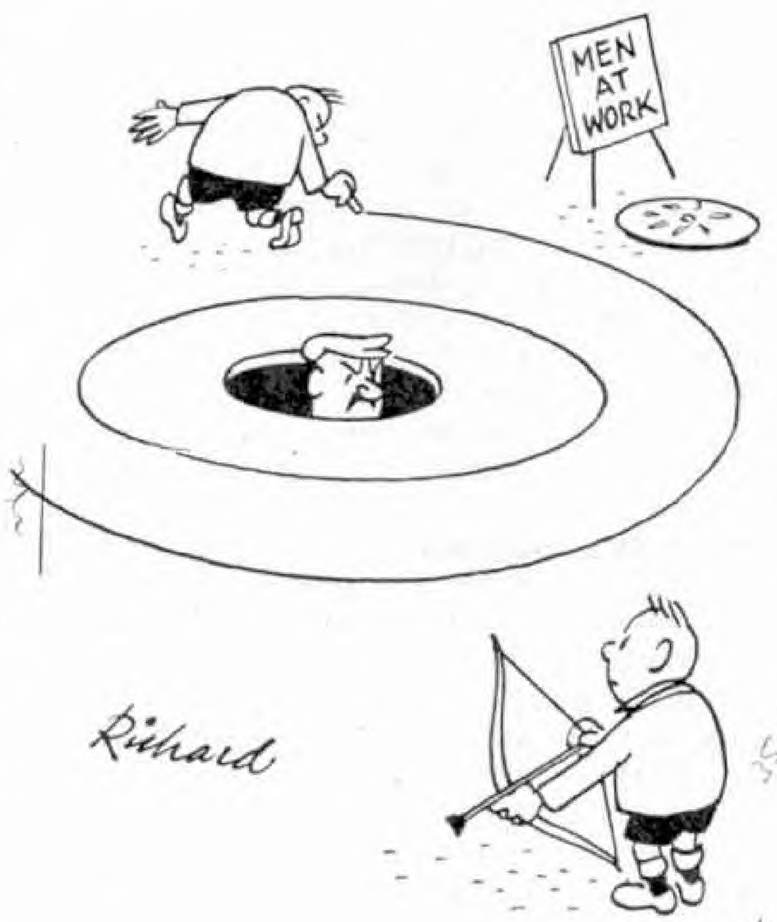
The manager of a department store put this notice in the window: "If you need it, we have it."

Later, in the window of a rival across the road, the following sign appeared: "If we don't have it, you don't need it."

When the inspector came through the train collecting tickets, the woman in the end seat looked up with a smile.

"I'm sorry, but I'm afraid my little dog has eaten my ticket."

"What a pity," replied the inspector, "May I suggest you buy him a second helping now."



The hard-up young actor was trying to talk his impatient landlord into waiting for the rent.

"In a few years," he said, "people will point to this apartment and say, 'Smith, the famous actor, once lived in here'."

"If I don't get my rent tonight," said the landlord, "they'll be able to say it tomorrow."

* * * *

Said the foreman to the painter struggling to pull his brush from the wall, "I told you it was a quick-drying paint."



"Are you there, Mr. Wiggins? I've come for my second lesson!"

A ship stopped suddenly one night in a dense fog, and some of the passengers hurried forward to see the captain.

"Why have we stopped?", one of them asked.

"Can't see the way ahead," the captain answered.

"But I can see the stars above us," argued the passenger.

"So can I," said the captain, "but unless the engines blow up we're not going that way."





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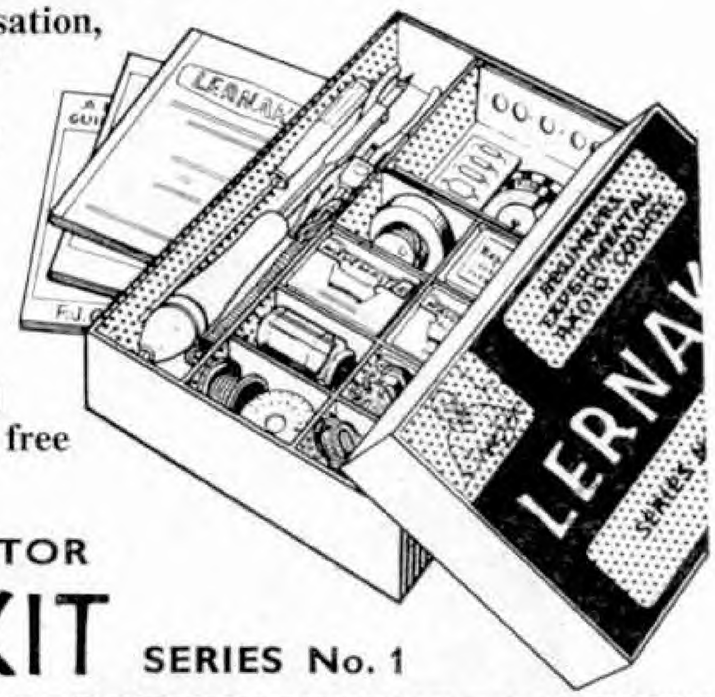
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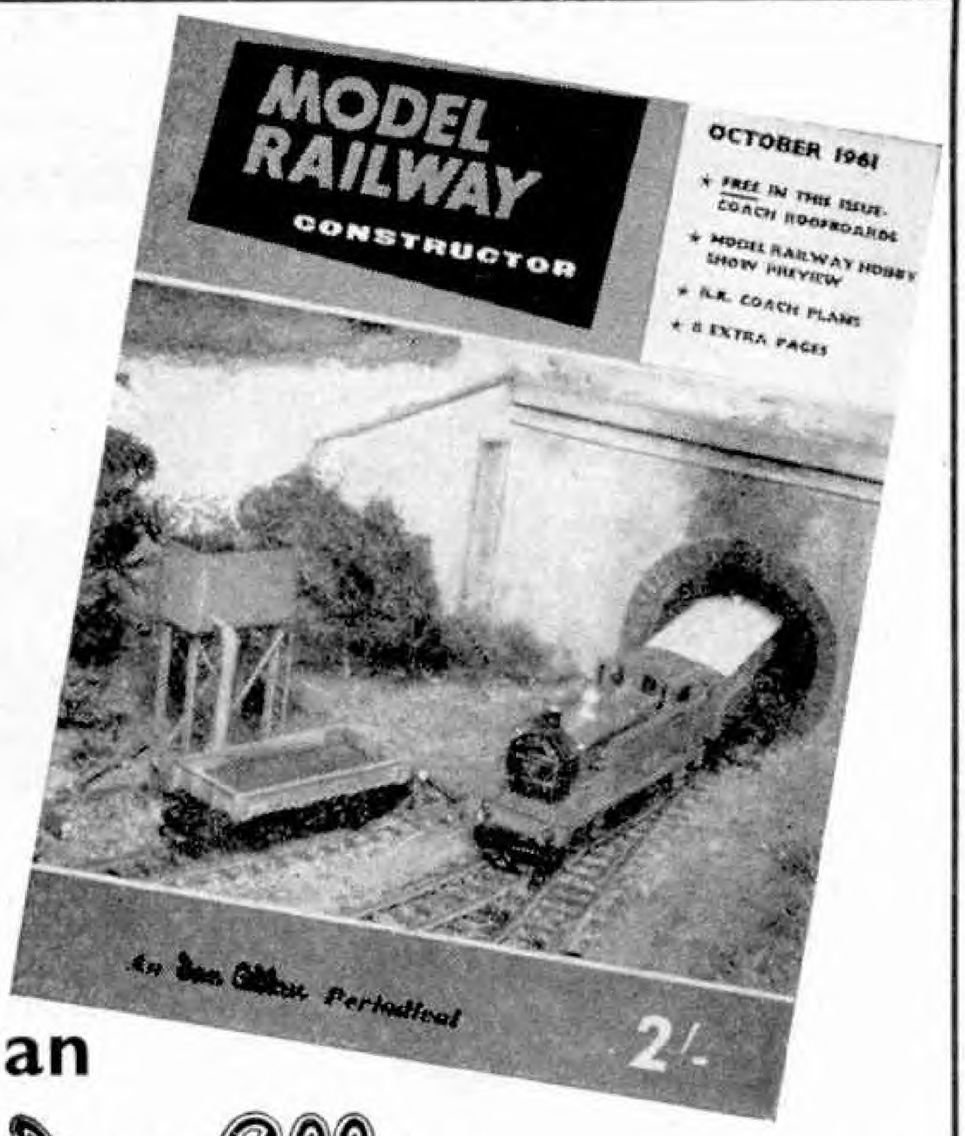
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The eighth article in the series on model railway operation in relation to full size railway practice.

PLANS PAGE

A popular regular feature of M.R.C. This month: Three British Railways parcels vans — scale drawings, photographs and descriptions.

Constructors' REVIEW

Another regular feature, in which new models are examined and tested by the technical staff, and their findings given in detail. Most new models are illustrated.

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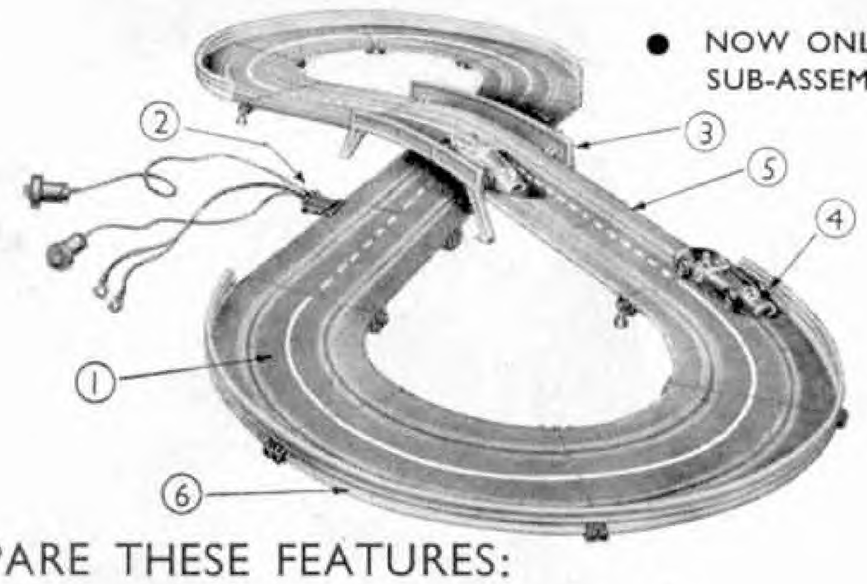
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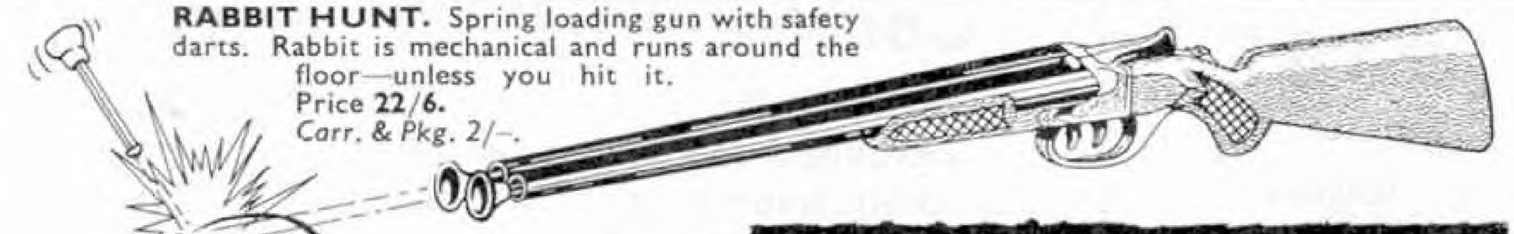
A single track plate girder over-bridge wide enough to span double track, roadway or river.

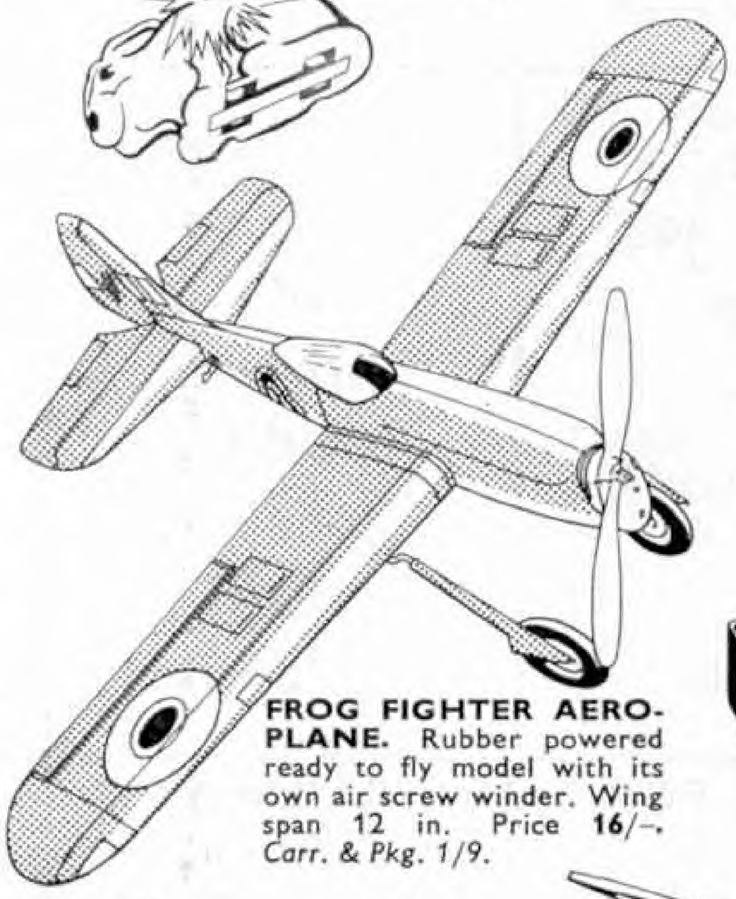
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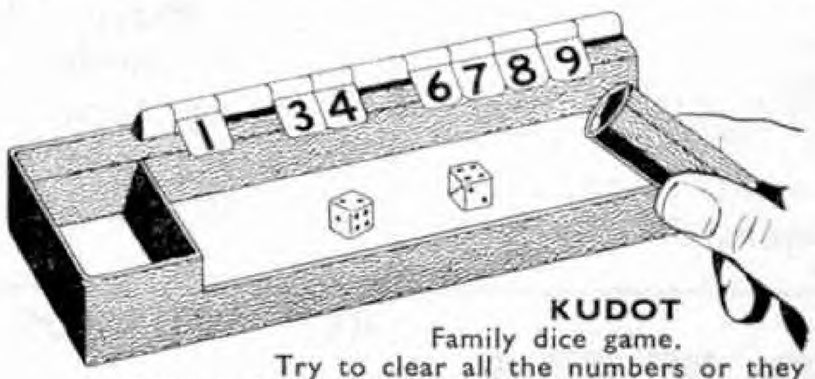
RABBIT HUNT. Spring loading gun with safety darts. Rabbit is mechanical and runs around the floor—unless you hit it. Price **22/6.** *Carr. & Pkg. 2/–.*





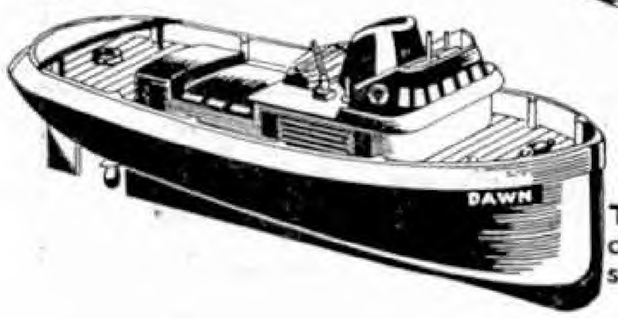
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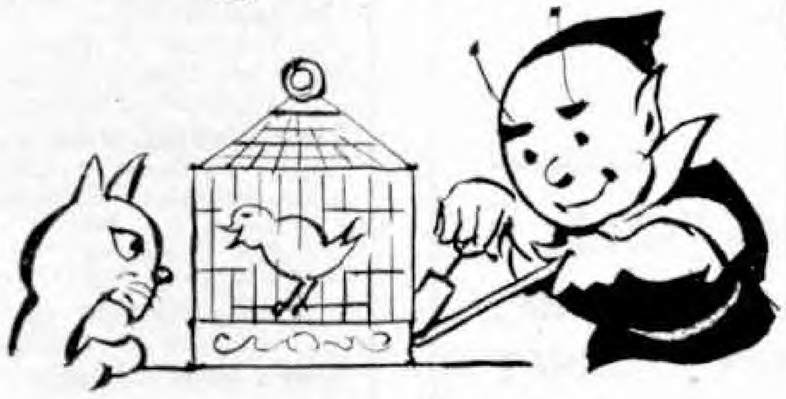
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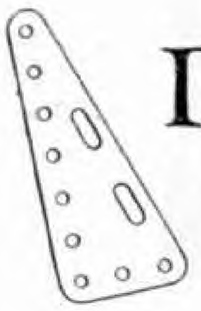
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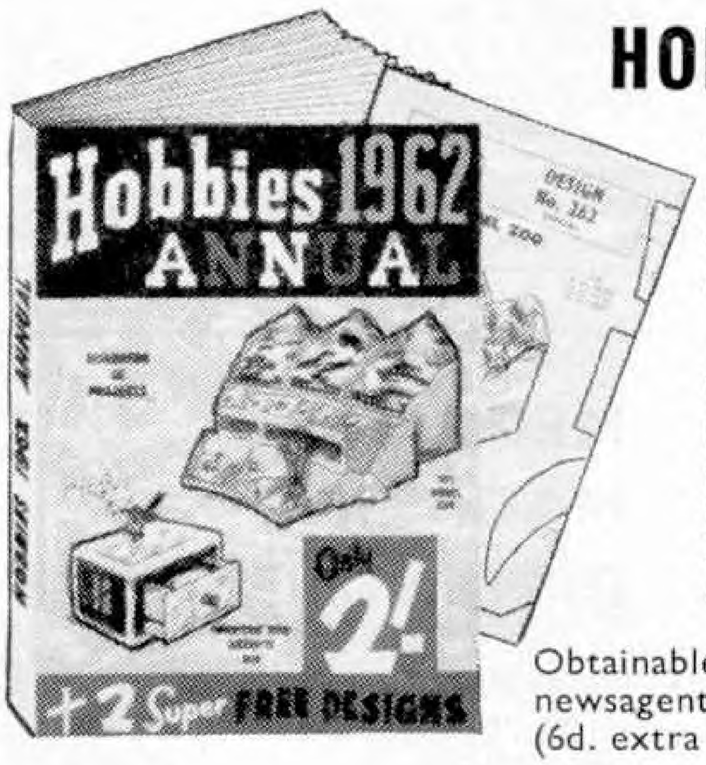
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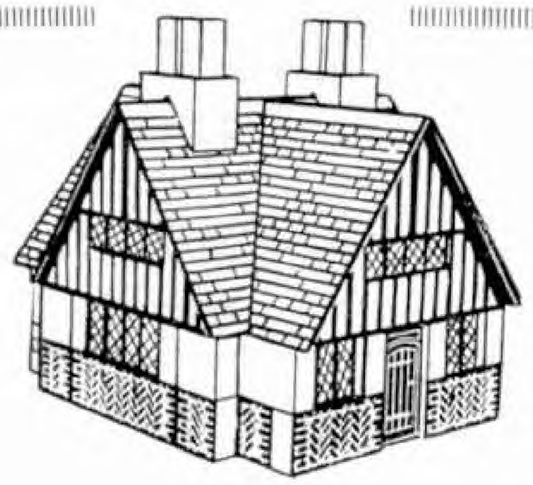
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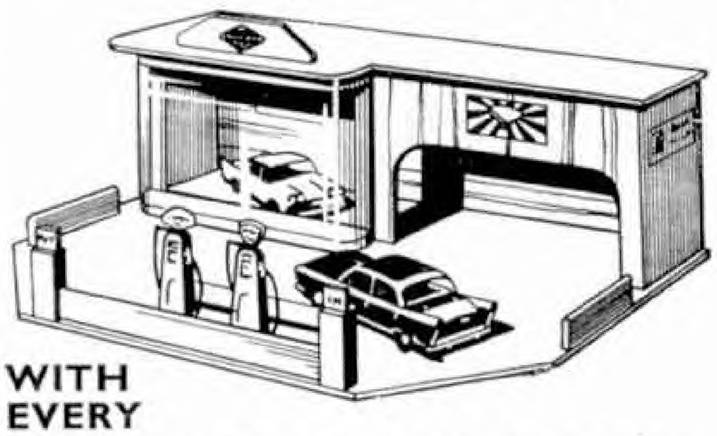
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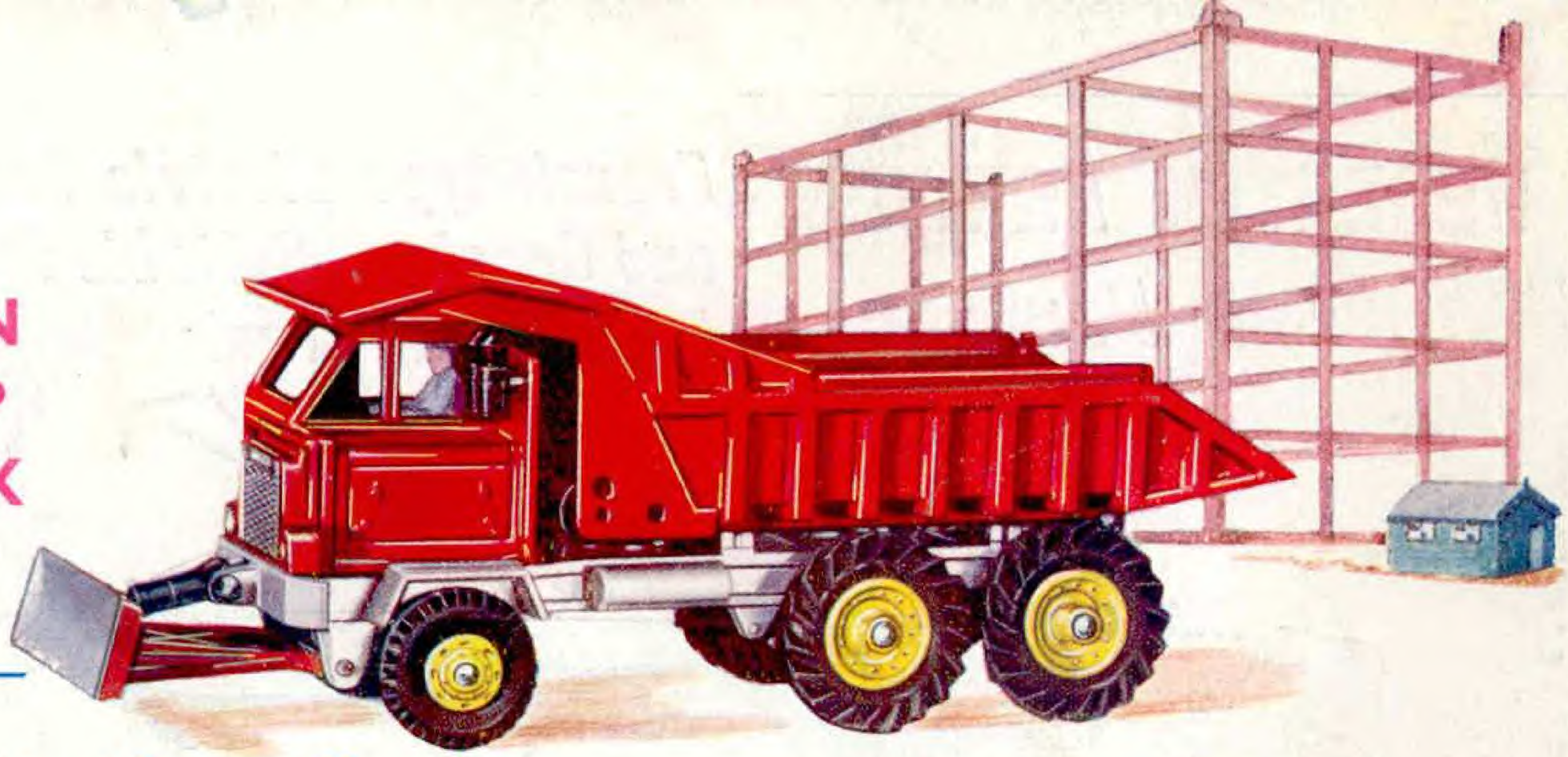
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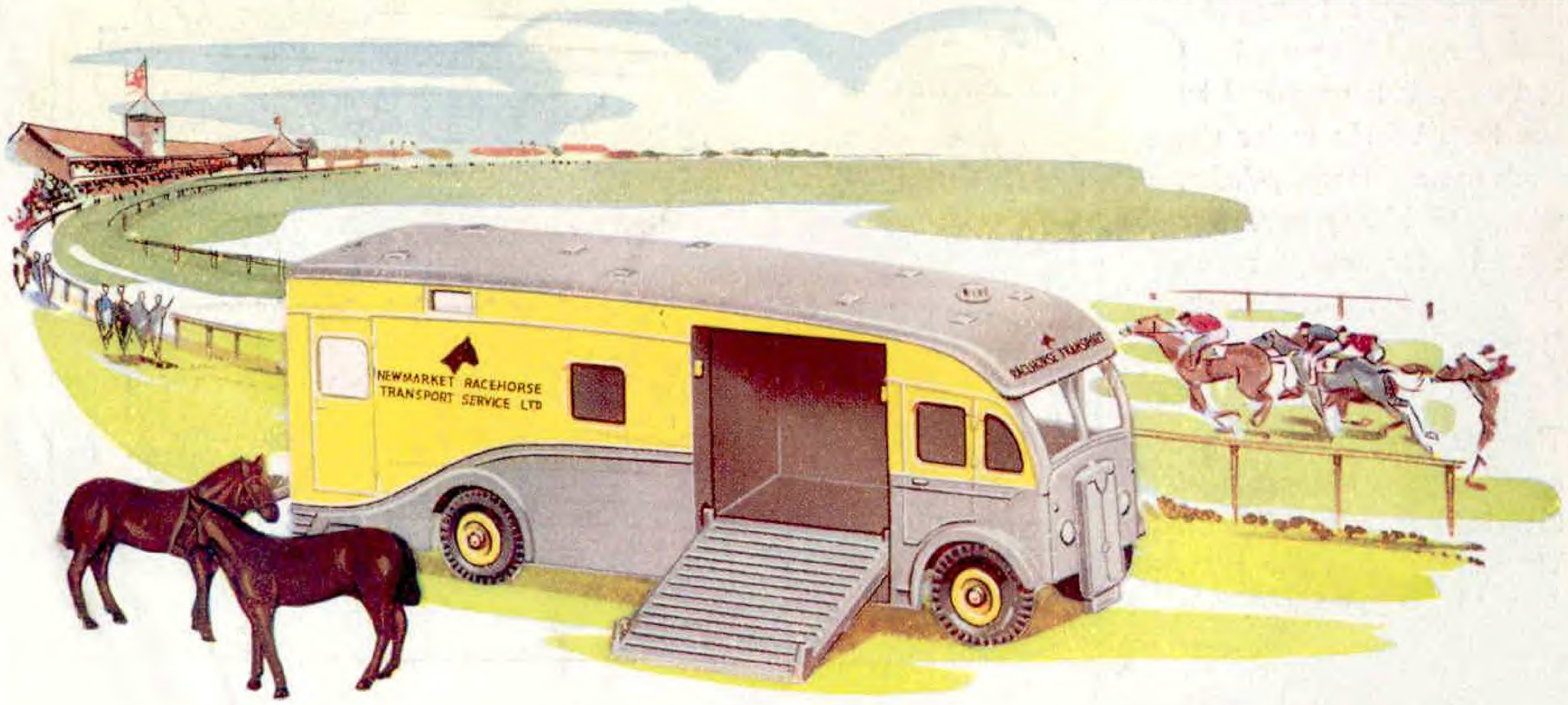
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Illustrated in the October issue of the Meccano Magazine. (1961).

Building the Car

The base of the car is a 3½" x 2½" Flanged Plate 1 to each end of which is bolted a 2½" x 1" Double Angle Strip 2. The sides of the car are 3½" Flat Girders 3 which are fixed to the flanges of the Plate 1, at the same time bolting in two 5½" x 1½" Flexible Plates 4 and 5. These form the back and front of the car. Two 3" x 1½" Flat Plates are then bolted underneath the Flanged Plate by means of a ⅜" Bolt. These are to give extra weight and stability. Two 2½" x 1½" Triangular Flexible Plates are bolted along with the Flat Girders 3, and between each pair of these a 2½" x 1½" Flanged Plate is bolted. This has a 2½" x ½" Double Angle Strip fixed across its centre. The Flanged Plate is fixed in place by the Bolts 6. A 2½" Flat Girder is then bolted to each of the Double Angle Strips. These form the seats. Next, two 1½" Strips are bolted to the 5½" x 1½" Flexible Plate 5 at the front of the car. A 3" Rod is journalled in these and held in place by Collars to form the front handrail. The handrail for the rear seat is made by fixing two Fishplates to the top of the Flanged Plate which is the back of the front seat. A 3" Rod retained by Collars is held in the Fish-plates. The wheels on which the car runs are built up by placing a ¾" Washer (Part No. 38D) between two Collars on a 3" Rod. The outer Collars 7 should be fixed with 7/64" Grub Screws and not the standard 5/64" Grub Screws as this part actually comes in contact with the rails and the larger Grub Screws would cause the car to run inefficiently. The Rods are journalled in the lugs of the Double Angle Brackets 2, spacing the Collars 7 from the Double Angle Bracket by two Washers. A Coupling 8 is bolted to the Flanged Plate 1 and in it is held a Centre Fork 9 with its centre prong bent a little towards the rear of the car.

Framework of the Railway.

Four 24½" Angle Girders 10, 11, 12 and 13, are bolted to two 24½" Angle Girders 14 and 15; they are fixed in pairs, bolted in the fifth and ninth holes of the Angle Girders. Two 12½" Angle Girders 16 and 17 are bolted to the centres of the Angle Girders 14 and 15 and they are braced by two 7½" Strips as shown. This should provide a good sturdy base to which the rails and their supports can

be fixed as follows. Two 12½" Angle Girders 18 are bolted to the Angle Girders 10 and 11, and to the Angle Girder 13 is bolted a 7½" Angle Girder 43. To the Angle Girder 12, is bolted a 5½" Angle Girder 44. Three 12½" x 2½" Strip Plates are bolted end-to-end and fixed in a semi-circle to the outside Girder 18 and the Angle Girder 44. Two 12½" x 2½" Strip Plates are then bolted end-to-end and fixed in a semi-circle to the inside Angle Girder 18 and the Angle Girder 43. Next bolt to the Strip Plates two 12½" Angle Girders 19. These should be spaced from Angle Girders 18 by ten holes on the outside Strip Plate and seven on the inside. The Girders are braced by two 2½" x ½" Double Angle Strips. Two 9½" Angle Girders 20 are then bolted to the Strip Plates. These also are spaced ten holes on the outside and seven on the inside from the Angle Girders 19. They are also braced by two 2½" x ½" Double Angle Strips. Two 7½" Angle Girders 21 are bolted to the Strip Plates at points seven holes on the inside and ten holes on the outside from the Angle Girders 43 and 44. They are braced by two 2½" x ½" Double Angle Strips as are the 9½" Angle Girder 22 and the 7½" Angle Girder 23. The Strip Plates are fixed to the Angle Girder 16 by Angle Brackets.

The Angle Girders 18 are braced near the top by a 4½" Strip 24, which is fixed to the two Angle Girders and should have one hole protruding on the inside of the structure; a 12½" Strip 25 is then bolted between the protruding hole of Strip 24 and the centre of the Angle Girder 14.

Fixed to the top of the Angle Girders 18 by ½" Reversed Angle Brackets are two 4" Curved Strips. The Curved Strips are fixed to the main rails by Fishplates. The inside rail is formed by two 12½" Flat Girders, which are joined together by a 2" Flat Girder and fixed to the Angle Girder 43 by a ½" Reversed Angle Bracket that is bolted four holes from the top. This rail is fixed by ½" Reversed Angle Brackets. The outside rail is formed in exactly the same way but having an extra 7½" Flat Girder bolted on the end. This rail is fixed to its supports by 2" Slotted Strips. A 12½" Strip is fixed between the Angle Girders 43 and 14. The two rails are tied together in the middle by a Screwed Rod. The outer rail, when fixed into position, should be slightly higher than the inside rail so that the car will lean inwards. It is advisable to test the car on the rails as you are constructing them to ensure that it runs smoothly.

Next, two 7½" Angle Girders 26 are bolted to the Angle Girders 12 and 13, and between these and the ends of the Angle Girders 10 and 11 are bolted two built-up Strip Plates,

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which are constructed in exactly the same way as those at the opposite end of the structure. Two 5½" Angle Girders 27 are fixed to the Strip Plates spaced twelve holes from the Girders 26 on the inside and sixteen holes on the outside. They are braced by two 2½" x ½" Double Angle Strips. Next two 4½" Angle Girders 28 are fixed to the Strip Plates. These also are braced by Double Angle Strips. The Angle Girders 26 are braced three holes from the top by a 4½" Strip 29. This should overlap one hole on the inside so that a 9½" Strip 30 can be bolted between it and the Angle Girder 15 to brace the structure.

The Angle Girders 26 are extended at the top by 2" Strips and fixed to these Strips by ½" Reversed Angle Brackets, are two 4" Curved Strips 31. Next bolt to the Curved Strips 31 two 12½" Angle Girders 32. The Angle Brackets are supported on 5½" Strips, which are bolted to Flat Trunnions that in turn are bolted to the Angle Girders 12 and 13. The Strips are attached to the Angle Girders 32 by Angle Brackets. Next, two 4½" Angle Girders 33 are bolted to the Angle Girders 12 and 13. They are spaced fourteen holes from the Angle Girders 43 and 44. They are braced at the top by a 3½" Strip. To the top of the inside Angle Girder 33 is bolted a ½" Reversed Angle Bracket, and to the outside Angle Girder is bolted a Fishplate. To the ½" Reversed Angle Bracket and the Fishplate are bolted two 5½" Curved Strips that in turn are bolted to the Angle Girders 32. To the other end of the Curved Strips are bolted 7½" Strips 34 which likewise are bolted to the Flat Girders fixed to the Angle Girders 43 and 44. The rails, supported by the Angle Girders 27 and 28, are then fitted. They are built in the same way as the rails at the opposite end of the structure and are bolted to the Curved Strips 31 and then to the Angle Girders, being bolted to the inside Girders by ½" Reversed Angle Brackets and to the outside by 2" Strips. They are then fixed to the ends of the Strip Plates. The inside rail is bolted to the Strip Plate by means of a ½" Reversed Angle Bracket. The outside rail is bolted straight on to the Strip Plate, at the same time bolting in on each rail, 5½" Curved Strips. To these Curved Strips are bolted two further 5½" Curved Strips and they would overlap four holes. Bolted between these Curved Strips and the Curved Strips at the top of the Angle Girders 18, are two 18½" Angle Girders. These are supported on two 5½" Strips 35 and two 9½" Strips as shown. They are braced by 2½" x ½" Double Angle Strips. This completes the framework of the railway.

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The platform for gaining access to the car is constructed as follows. A $3\frac{1}{2}$" x $2\frac{1}{2}$" Flanged Plate is bolted to the Angle Girder 15. They should overlap two holes. A $5\frac{1}{2}$" x $2\frac{1}{2}$" Flanged Plates is bolted to the top, at the same time bolting on a $2\frac{1}{2}$" Braced Girder that forms the back rail. The side rail is a $5\frac{1}{2}$" Braced Girder. A $5\frac{1}{2}$" Angle Girder is bolted underneath the Girders 10 and 11, and to this is bolted a $2\frac{1}{2}$" x $\frac{1}{2}$" Double Angle Strip which should overlap the end of the Angle Girder by one hole. $5\frac{1}{2}$" Strips are then bolted between the lugs of the $2\frac{1}{2}$" x $\frac{1}{2}$" Double Angle Strip and the end holes in the $5\frac{1}{2}$" x $2\frac{1}{2}$" Flanged Plate, at the same time bolting 2" Strips to the lugs of the Double Angle Strip, and also a 2" Strip is bolted to the end hole of the Flanged Plate. The steps are formed by bolting $2\frac{1}{2}$" Double Angle Strips to the $5\frac{1}{2}$" Strips as shown. The handrails are Rods held in Rod and Strip Connectors and bolted between the 2" Strips at the bottom and the 2" Strip and the Braced Girder at the top.

The Drive.

An E15R Electric Motor is bolted to the Angle Girders 10 and 11. A $\frac{1}{2}$" Pulley Wheel fixed on its spindle is arranged to drive a 3" Pulley on a 4" Rod 36. Another $\frac{1}{2}$" Pulley Wheel on Rod 36 drives a second 3" Pulley on a $4\frac{1}{2}$" Rod 37. A $\frac{3}{4}$" Pinion on the end of Rod 37 drives a 50-tooth Gear Wheel on the Rod 38. A $\frac{3}{4}$" Sprocket Wheel on Rod 38 Drives by Chain, a 3" Sprocket Wheel on Rod 39, which also carries a 2" Sprocket Wheel positioned in the centre of the rails. A Universal Coupling ic fixed to the inner end of the Rod 39.

The part now to be constructed is the chain arrangement that hauls the car to the top of the incline. Two 1" Triangular Plates 40 are bolted to the Flat Girders that form the rails, to provide the bearings for a $3\frac{1}{2}$" Rod carrying a 2" Sprocket Wheel 41. Two 4" Curved Strips 42 are bolted together with Fish-plates between them. One of the Fishplates is held by nuts on a 3" Screwed Rod 45, which is fixed with nuts in the Flat Girders. The other Fishplate is extended by a 2" Slotted Strip bolted to a $1\frac{1}{2}$" x $\frac{1}{2}$" Angle Bracket which is fixed to the $4\frac{1}{2}$" Strip 24. A length of Sprocket Chain is placed around the 2" Sprocket Wheel between the rails on Rod 39, with the Chain lugs facing inwards. The

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Strips

Chain is then taken over the 4½" Curved/and around the Sprocket Wheel 41. The ends of theChain can then be linked together. The 4" Curved Strips should be adjusted to keep the Chain in contact with the Centre Fork 9 fixed to the car. A similar Chain drive is arranged on the opposite side of the track to pull the car up the slope. A Universal Coupling 46 is secured to the Rod 48 and connected to the Rod 47. The other end of the Rod 47 is fixed in the Universal Coupling on Rod 39.

On Rod 48 is a 1" Gear that meshes with another 1" Gear on the Rod 49. Rod 49 carries also a 1" Sprocket Wheel 50 that drives another 1" Sprocket Wheel 51 on a 3½" Rod mounted in Trunnions bolted underneath the 12½" Angle Girders 32. Fixed on this 3½" Rod is a 2" Sprocket Wheel that drives the car hauling chain. A 3½" Rod 52 is arranged in each of the two car hauling drives to raise the Chains so that the Centre Fork 9 on the car engages them and the car is hauled up the slopes.

Parts required to build the Scenic Railway:- 1 of No. 1; 4 of No. 1a; 6 of No. 1b; 6 of No. 2; 2 of No. 2a; 3 of No. 3; 2 of No. 5; 6 of No. 6; 3 of No. 6a; 6 of No. 7; 2 of No. 7a; 8 of No. 8; 3 of No. 8a; 6 of No. 8b; 4 of No. 9; 5 of No. 9a; 11 of No. 10; 15 of No. 12; 2 of No. 12b; 1 of No. 13; 5 of No. 15a; 1 of No. 15b; 4 of No. 16; 1 of No. 16a; 6 of No. 16b; 2 of No. 19b; 2 of No. 23a; 1 of No. 25; 1 of No. 27; 2 of No. 31; 305 of No. 37a; 285 of No. 37b; 61 of No. 38; 4 of No. 38d; 2 of No. 46; 19 of No. 48a; 2 of No. 51; 1 of No. 52; 2 of No. 53; 6 of No. 55a; 28 of No. 59; 1 of No. 63; 1 of No. 65; 2 of No. 73; 2 of No. 77; 3 of No. 80c; 1 of No. 81; 6 of No. 89; 8 of No. 89b; 1 of No. 94; 3 of No. 95; 1 of No. 95a; 1 of No. 95b; 2 of No. 96; 1 of No. 96a; 1 of No. 98; 1 of No. 100; 8 of No. 103b; 2 of No. 103d; 2 of No. 103f; 4 of No. 103h; 2 of No. 103k; 2 of No. 108; 2 of No. 111a; 1 of No. 111c; 13 of No. 125; 2 of No. 126; 2 of No. 126a; 2 of No. 140; 1 of No. 186c; 1 of No. 186d; 2 of No. 189; 2 of No. 196; 8 of No. 197; 4 of No. 212; 4 of No. 221. 1 E15R Electric Motor.